AMERICAN AGRICULTURIST

FOR THE

FARM · GARDEN · & · HOUSEHOLD

"AGRICULTURE IS THE MOST HEALTHFUL, MOST USEFUL, AND MOST NOBLE EMPLOYMENT OF MAN."—WASHINGTON.

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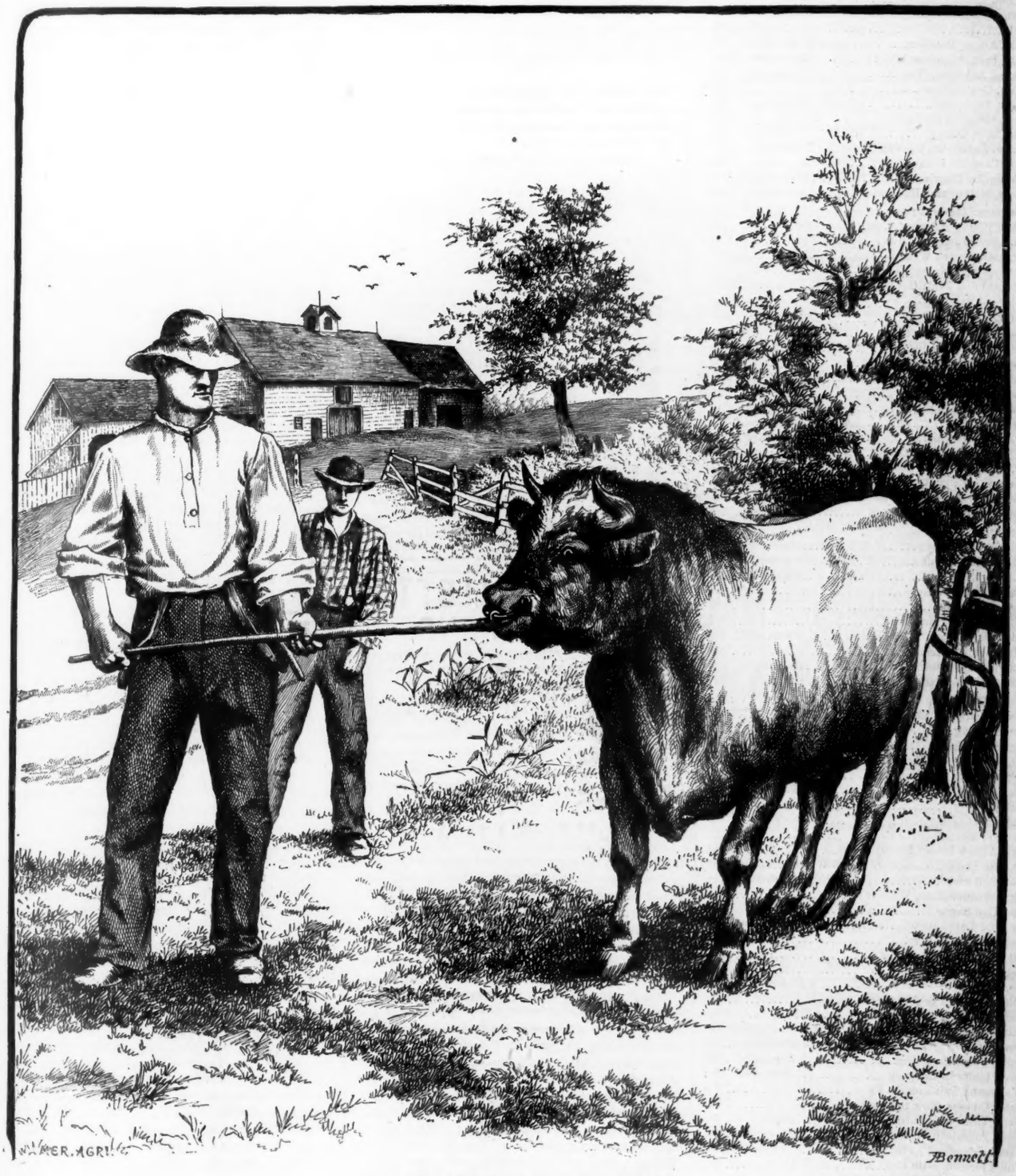

"LOOK AT HIM!"

Drawn and Engraved for the American Agriculturist.

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Contents of this Number.

Apiary, La Fe, In San Domingo ... *Illustrated* 318
Barns, Roofs for Large ... 2 *Illustrations* 328
Basket Items ... 326—327
Bee Notes for August ... 318
Bell Bird, The South American ... *Illustrated* 322

Boys' and Girls' Columns:
"Ben and I." ... 4 *Illustrations* 338-339
The Doctor's Talks ... 6 *Illustrations* 340
Rebus ... *Illustrated* 340

Bridges, About Country ... 5 *Illustrations* 317
Bulbs, Dutch, or Spring-flowering ... 2 *Illustrations* 332
Cattle ... 313
Cattle, Angus Doddies ... 2 *Illustrations* 329
Cattle, Bull, "Look at Him!" ... *Illustration* 313
Cedar of Lebanon, The ... *Illustrated* 321
Cellars, Cooling the ... 330
Closets, Inodorous ... *Illustrated* 316
Clover, Growing for Seed ... 330
Clover Hay, Curing ... 316
Cottage, Suburban, Costing $2,500 ... 4 *Illustrations* 325
Dairy Utensils, Cleaning ... 322
Drainage by Plowing ... *Illustrated* 316
Elders, Native and European ... *Illustrated* 333

Farm and Garden:
Farm Work for August ... 314
Flower Garden and Lawn ... 315
Greenhouse and Window Plants ... 315
Kitchen and Market Garden ... 315
Orchard and Fruit Garden ... 315

Farms, Small vs. Large ... 328
Feed Box and Hay Rack ... *Illustrated* 316
Fence-Posts, Timber for ... 332
Fence-Posts, Time to Cut ... 330
Flies in Stables ... 333
Fodder Crops, Large ... 334
Forest Tree Planting ... 333
Gate, Top Hinge of ... *Illustrated* 330
Harebell, The ... *Illustrated* 334
Hay, A Derrick for ... *Illustrated* 317
Hay, Best Time to Cut Clover ... 322
Hay, How to Make a Cock ... 317
Hemenway Farm (Va.) ... *Illustrated* 323
Hessian Fly or Midge.—The Difference ... 324
Hide, How to Take Off ... 2 *Illustrations* 330

Household:
Basket for a Baby ... *Illustrated* 337
Clover Leaf Table ... *Illustrated* 337
Cracker Sachets ... *Illustrated* 337
Fancy Knick-Knacks ... 337
French Pickles ... 336
Hints for the Household ... 337
Japanese Umbrella Card Holder ... *Illustrated* 337
Mayonnaise Dressing ... 337
Summer Souvenirs ... 7 *Illustrations* 336
Tidy of Rick-Rack ... *Illustrated* 337

Insects, The Cattle Gad-Fly ... 324
Lambs, Early for the Butcher ... 323
Late Planting ... 318
Lily of the Valley ... *Illustrated* 333
Midge or Hessian Fly—The Difference ... 324
Milk, Centrifugal Skimming ... 319
Mistletoe in Commerce ... *Illustrated* 335
Park Scenery ... *Illustration* 324
Peaches, Classification ... 3 *Illustrations* 321
Peaches, Marketing the Crop ... 315
Peas, A New Insect Enemy to the ... 321
Pig, The Small Yorkshire or Small White ... *Illus.* 319
Plow, A Breast ... *Illustrated* 328
Right-handed Man, What is a? ... 325
Road-side Shade ... 332
Roofs for Large Barns ... 2 *Illustrations* 328
Rye as Green Manure ... 324
Salt for Stock ... 335
Sheep, Foot-Rot in ... 316
Silo, An Above-Ground ... 2 *Illustrations* 334
Soiling Crops, Feeding Green ... 329
Stock Range, A Southern ... 331
Strawberries, Next Season from Pot-Layered Plants 321
Suburban Cottage ... 3 *Illustrations* 325
Tramp, The Traveling ... *Illustrated* 324
Trees, Cedar of Lebanon ... *Illustrated* 321
Walks and Talks on the Farm ... 319
Water Cresses, How to Grow ... 334
Water Trough for Cattle, etc. ... *Illustrated* 326
Weed, American Water ... *Illustrated* 335
Weeds, Shepherd's Purse ... *Illustrated* 335
Wheat for Domestic Use ... 322
Wheat, How Much Seed per Acre ... 324
Wire Fences, How to Make ... 2 *Illustrations* 323
Yachting for Sport ... *Illustrated* 331

See pages 341 and onward for other interesting Reading Matter, Sundry Humbugs, Business Announcements, etc., etc.

Summer.

From all the misty morning air, there comes a summer sound,
A murmur as of waters from skies, and trees, and ground.
The birds they sing upon the wing, the pigeons bill and coo.—R. W. Gilder.

Dead in the air, and still! The leaves of the locust and walnut
Lazily hang from the boughs, inlaying their intricate outlines,
Rather on space than the sky—on a tideless expansion of slumber.—Bayard Taylor.

Turn to page 348 for matters of special interest.

Never before during its existence has the *American Agriculturist* received so many kind and appreciative words from subscribers, as are now coming to us from every quarter. W. C. West, manager of the Ingleside Farms, Chester Co., Pa., writes: "Please allow me the privilege of acknowledging the receipt of the best number of the *American Agriculturist* I have received for years, in the July number. May you be prospered in your good work, and may your paper continue to improve." We present elsewhere other flattering testimonials, showing that our readers keenly appreciate the great improvements and transformations which are being made in the *American Agriculturist*.

Why should not our rural readers improve the temporary lull, following harvest time, with a little rest and recreation, as do all other classes? They will be all the better for the relaxation and enjoyment which a few days change insures. The great majority of people, who come to New York during the summer season, fail to visit some points of great interest, mainly because they are not made acquainted with them. There are other trips quite as entertaining as that to Coney Island. A sail down the bay of New York, through the historic Kill von Kull; a drive along the beautiful river-side boulevard, which skirts the Hudson for miles above the Central Park, or a sail or a drive to numerous points on Long Island Sound, will afford a deal of sight-seeing and enjoyment to our visiting readers.

We present on another page, a most picturesque spot in Pelham Bay, only a few miles from New York, of whose existence comparatively few people know. And yet all the region thereabouts is historic, while the salt air, together with a sail and drive, are specially invigorating to those who may desire salt water for a change. The scene is from designs kindly furnished by the new Park Commissioner, to one of the Editors of the *American Agriculturist*, who in his trips around New York, in search of information for our readers, finds no more attractive spot than Pelham Bay and the surrounding scenery.

There came to us, as we were going to press with this number, a young man from Down East, with a pathetic story of the manner in which he had been swindled by a band of sharpers here in New York. We immediately proceeded to headquarters with the victim, where the necessary assistance was guaranteed him for recovering his money; but, finding that his name would go into the papers, he decided to go home. "I do not want my friends," he said, "to laugh at me," as he left our office. This fear of being ridiculed, really is the secret of the successful operation of so many swindlers here in New York. If every one who has been duped, would immediately come to this office, and make known the facts, we guarantee that in a very short space of time, we should be able to rid the city of all the various charlatans and impostors, who lie in wait for the unsuspecting and unwary strangers visiting the metropolis. The fact, that one has been imposed upon by these sharpers, is nothing to be ashamed of. The ablest and most eminent men in the country are often ensnared by them, as for example, Charles Francis Adams, not long ago in Boston. Do not hesitate for a moment to call upon us and make known the facts, when you have been trapped by swindlers.

FARM AND GARDEN WORK FOR

AUGUST

Of all the months in the year, save those of winter, August is the month in which work is the least pressing. The wise farmer will devote this month, or a large share of it, to recreation. Let the farmer takes his wife, and leaving the boys and girls to look after the farm, go somewhere. The eastern farmer may go west, the western farmer east, and both may go south with profit. If long journeys are not convenient, make neighborhood visits. An observing man can not go to another farm, near, or at a distance, without learning something that he can profitably practice at home. The main business of the month is to take a vacation, and leaving the farm and its cares behind him, refresh himself with new scenes, and take a long rest. ....Are you ready for the fairs? Every wide-awake farmer will visit the nearest fair, and as many others as he can, and exhibit some product of his farm. The next is the great fair month, and the exhibits should be already selected and in preparation for the fair. If a steer or other animal is to be shown, see that it is well fed, and groomed or brushed. If cabbages or other vegetables are to be exhibited, coax them, by means of extra hoeings and occasional applications of liquid manure, to do their best. So with fruit; select a branch, and remove all small and inferior fruit, thinning the crop at least one-half, that the fruit left may grow large and fair....Cut oats before they are fully ripe; they will shell out less, and the straw will be more valuable .... Buckwheat sown early this month, will usually escape the frost. Should it be injured, it will yet be valuable for plowing under. ....The old New England method was to work corn three times. The first hoeing was called weeding; the second, half-hilling, and the third was to hill the corn; after this it was left for the ground to be over-run with late weeds. The better method is to run the cultivator as long as a horse can pass between the rows. The cultivator only stirs the surface, but kills the weeds. A plow should not now be used, as it cuts the roots....Thin the root-crops. Sow Strap-leaf turnips in drills twenty-eight inches apart, using one hundred and fifty pounds to the acre of superphosphate, or bone flour, near the seed....Give meadows a top-dressing of old manure or fine compost. Harrow bare and mossy spots in pastures, and sow seed on them. Give a dressing of lime or plaster. Cut brush with a brush-hook; burn and save the ashes....This is a harvest month for weeds. The perennial kinds run up to flower, and will ripen seeds to make future trouble. Cut and burn, if they can not be grubbed up by the roots .... The manure-heap should increase in size. Add to it potato tops and other refuse, weeds that have not gone to seed, sods from the roadside, etc....If wheat is to follow oats, plow as soon as the oats are off, turning a light furrow to cover the stubble. When the scattered oats start, kill them by the use of the cultivator. If the wheat is to be sown on a clover sod, turn under the clover as deeply as possible. If lime is to be applied, place a bushel at every two rods each way. The lime will slake in a few days, or with the first shower; spread it evenly, ready to plow in next month....Turn work horses out to

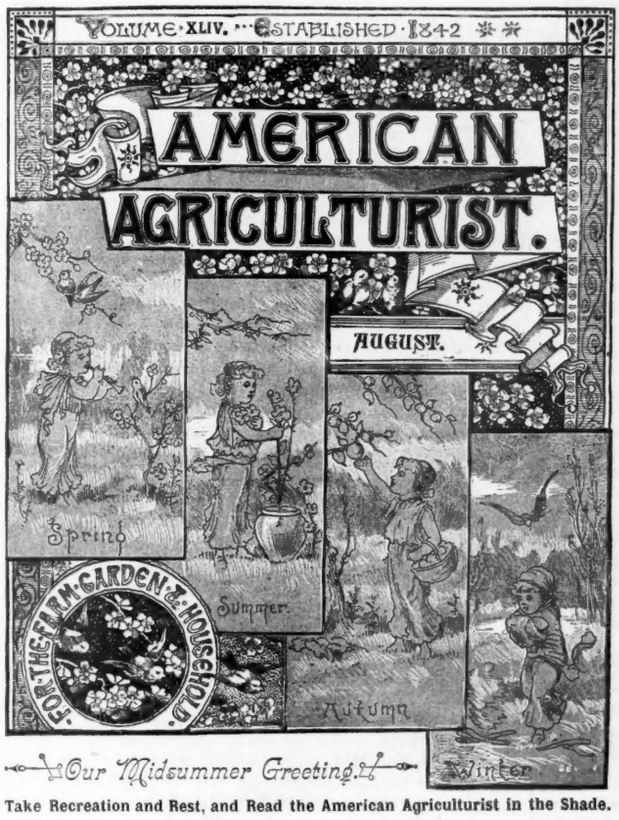
pasture at night, and give their usual grain feed besides. Scrape off, or wash off with warm water, the eggs of the Bot-fly from their fore-legs. Give a long rest at noon. Let them have water often, with a handful of corn-meal stirred in....As the pastures fail, give cows a plenty of corn fodder, cut short and sprinkled with two to four quarts of corn-meal for each cow, daily. This will keep up the flow of milk, and increase its richness. If there is not ample shade in the pasture, give the cows three hours, in the heat of the day, in a clean, cool stable....Give calves the benefit of a clover after-math; supply salt daily, to prevent bloat.... Wean the lambs, and place the rams in a field by themselves, and give them a little extra feed. Give lambs, daily, a handful of mixed bran and oil-cake. Ewes with a full bag should have a portion of the milk drawn off every night, until dried off. Smear the noses of the sheep with tar, to keep off the Gad-fly....Swine at pasture should have clean water. If a pig appears sleepy, and disposed to hide away by itself, pen up the animal alone, and give it soft food, with some linseed meal and four ounces of salt. A pound of corn fed now will make as much pork as two pounds in cold weather, and now is the time to pen up store pigs for fattening....Give the poultry-house a coat of hot lime-wash, to each pailful of which is added an ounce of carbolic acid. Go over the whole interior, including the roosts, to destroy lice. Clear out the droppings frequently, and spread on the compost heap. Old fowls often get fat on the stubbles, and are ready for sale. Sell off or consume the surplus cocks early.

Orchard & Fruit Garden.

Marketing of early fruits should receive proper attention in neatness of packages, and in assorting the fruit. Marketing peaches is noted elsewhere. ....Do not send wind-falls and misshapen apples to market; it pays better to make them into vinegar; a small cider mill and press may be used. A large quantity of cider for conversion into vinegar may be secured....Early pears soften more rapidly than late ones, and should be gathered while still very hard....Young trees should be mulched when planted; it will be beneficial to mulch even now.... Destroy weeds before they get too large to be killed with the harrow or cultivator.....Grapevines must be watched for mildew, and if it appears, sulphur must be freely blown upon them with a bellows. The insects attacking the vines at this season are mostly large caterpillars and beetles; hunt for, and pick them off by hand. Break off all shoots not wanted, and continue to pinch any laterals that push....Plant-lice often appear in large numbers on trees; strong soap-suds or strong tobacco water, will kill them....If fire-blight appears on pear trees, cut away the dead portion....Budding is done whenever buds are well matured, and the bark of the stock lifts freely.

Kitchen and Market Garden.

Keep asparagus clear of weeds, using the hoe until the tops prevent, then pull the large weeds that appear....Hoe cabbages and cauliflowers frequently. Liquid manure will cause rapid growth. ....Cultivate between the rows of carrots and other root crops, until the leaves prevent....Celery may still be set and make fair-sized heads for winter use. Let that planted earlier be well cultivated and clear of weeds....Keep sweet corn clear of weeds, and the soil mellow, by the use of the cultivator. As soon as the ears are gathered, remove the stalks and cure for fodder. Cut off all smutty ears and stalks, and burn them....Gather cucumbers for pickles daily. Always cut them leaving the stem attached. Two or three inches in length is large enough....Promote the growth of egg-plants by applications of liquid manure. Place hay or straw around the plants to keep the fruit from the ground....When a large share of the onion tops fall over, they are ready to harvest. Pull the onions and allow them to dry for a few days, then store in an airy place where they can be spread, to prevent heating. The crop is frequently sold as soon as harvested....Spinach for use this fall, may be sown now....Keep sweet potatoes free from weeds, and move the vines occasionally to keep them from striking root....The large green "worm," which makes such havoc with tomatoes, may be detected by its droppings—search for and kill it. It is harmless to handle....Sow turnips in places from which peas and other early crops have been removed. Leave no soil unoccupied.... Weeds are not to be neglected. Some, such as Purslane (or Pussley), grow all the faster in hot weather. The rake, the hoe and the cultivator, are



Take Recreation and Rest, and Read the American Agriculturist in the Shade.

the weapons in this warfare, and they should be in constant use. Take no weeds to the compost heap that have seeds, but dispose of them by burning.

Flower Garden and Lawn.

Weeds are the plants requiring most attention in the flower garden. If the borders are not cared for, weeds will soon give them an air of neglect. If the garden can not be kept in good order, it is too large....Box is still used for edging, and should be clipped this month....In very hot, dry weather, lawns should be mown less often. The frequency of mowing should be determined by the rapidity of growth....Stakes should be given to dahlias, gladioluses, tuberoses, and such others as need them, before the plants become too large....Prepare a bed of fine, light soil, in which seeds of perennials may be sown as soon as they are ripe....Potted plants used for decorating the lawn, the veranda, etc., will need frequent watering, and partial shade.

Greenhouse and Window Plants.

Window boxes and hanging baskets will require abundant watering, and if possible they should be shaded during the hottest part of the day....Make all repairs in the greenhouse....Provide supplies for winter; pots, sand, potting soil, peat and moss.

Marketing the Peach Crop.

Despite the croakers, who "bear" the peach harvest, who usually have the buds winter-killed, who predict damage from cold rains at blossoming time, and later discover a fearful "drop" of the fruit after it has set, there will be a very large crop of peaches. In what have heretofore been known as the "peach regions," the yield will be nearly up to the maximum. Besides this, peaches have been, within the last few years, extensively planted in localities where they have not of late years been grown. Many of these new orchards will come into full bearing this year for the first time, and these are sufficiently numerous to appreciably increase the aggregate. Experienced peach-growers do not need any instruction in packing and shipping the fruit, while the novices will find a few hints of great assistance. As soon as the probable yield of the orchard can be estimated, packages for shipping the crop should be provided, the earlier the better. The peach basket is rapidly being replaced by the crate, especially for long distances, and where the peaches are to be re-shipped from the place to which they are consigned, to a more distant market. Still, baskets are in use to a large extent, and there are several different styles made by the manufacturers. Whatever may be the style of baskets, they should be ordered well in advance of the time when they will be needed, and so marked that they may be properly identified. The standard size of the basket is five-eighths of a bushel, struck measure. Much smaller baskets are used by those who care little for their reputation for honest dealing. Baskets are returned to the grower. The number of baskets needed for marketing a crop will depend upon the promptness with which "empties" are returned. For a crop of ten thousand baskets, it is estimated that six hundred and fifty baskets would be sufficient to market it, were the "empties" properly returned, but in view of all the delays, at least four thousand baskets are provided. Crates, on the other hand, go with the peaches, and are not returned, consequently as many crates must be provided as there are bushels to be shipped. The standard crate consists of thirteen pieces: two ends, and a middle piece, of three-quarter-inch stuff, are seven and one-half inches wide, by fourteen inches long. The other pieces are of three-eighth inch stuff. The bottom and top are six and one-half inches wide, and twenty-three and one-half inches long. The sides have four slats, each two and one-half inches wide, and twenty-three and one-half inches long. If the crates are to go to a great distance, a cleat is nailed across the top and bottom at each end; these allow of free ventilation when the crates are stacked one upon another. The crates are usually made by the grower. Peaches should never be soft when packed for even a near market. If to go a long distance, the degree of hardness must be governed by the length of time the fruit will be en route. The exact condition at which fruit must be gathered for different distances, can only be learned by experience. Before packing, the peaches should be turned out upon a table, where they may be inspected, and not a single soft one allowed to be packed. One over-ripe peach may spoil a whole crate. In packing, it is usual to make three grades: seconds, firsts, and extras. It is customary to "twig" the extras, by placing a leafy twig of the tree upon the top of the basket or crate. Let each crate or basket be of uniform quality throughout, though it is allowable to "face" the baskets, by turning the colored cheek of the top layer uppermost. Crates should be so full, as to require some pressure to bring the cover to its place. Mark all the packages plainly.

Drainage by Plowing.

A subscriber at Tamora, Neb., sends us, with diagram, his method of draining a low lying field by plowing. The two irregular lines show the lowest part of the field. If this be plowed in an ordinary way, the back furrows would prevent the flowing off of the water. But by back-furrowing, and throwing the dead furrows as near the line of natural drainage as possible, the field is drained of surface water. The ends of the lands, from 1 to 2, and from 3 to 4, may be divided into as many lands as needed, if too large to be plowed together. It can be cross-plowed without interfering with this drain,

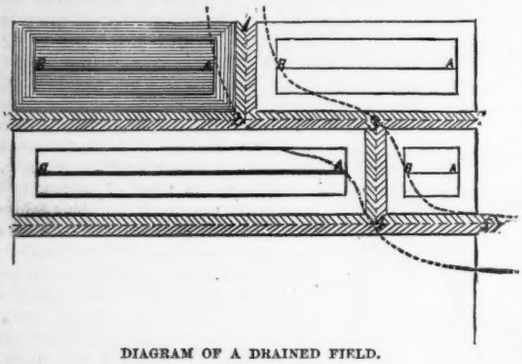


DIAGRAM OF A DRAINED FIELD.

if the courses 1 to 5 are maintained. The subscriber adds: "To avoid too much turning, I strike out my back furrow from *B* to *A* at each end of the field, and when within say twelve feet from where I want the drain, throw the plow out and put it in again at an equal distance on the other side, and on returning repeat this, and so on until the sides of my land are the same width as the ends, when I plow across the ends of, and around each piece separately, leaving the dead furrows of course on the outside of each land. To widen this drain for another season if not wide enough, put the near horse (right-hand plow) into it, and plow the sides out before beginning to plow the field. This, with the plowing following, will give a pretty wide dead furrow. The man whom Mr. Harris met on his journey west, was right when he said that our farming is largely mechanical. The principles that underlie eastern and western farming, are essentially the same, but there is a considerable difference in their application. I am glad that the *American Agriculturist* is getting more adapted to the wants of the West." [Yes, and to those of the South also.—ED.]

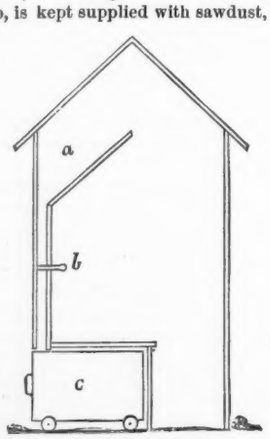
Foot-Rot in Sheep.

It is far easier to prevent foot-rot than to cure it. Once, in the writer's experience, we had it in a large flock of sheep for two years. We finally cured it, but it was a tough job, and we have had a wholesome dread of it ever since. We now keep a gallon jug of carbolic acid always at hand, and whenever a sheep is lame, or the hoofs need paring, we apply, with a brush, a little crude carbolic acid to the feet. Two or three times a year, we make a business of going over the whole flock, and give a liberal application of carbolic acid to every hoof. We have had but one case of genuine foot-rot since we adopted this practice, now more than a dozen years ago. This one case was easily cured. For cure or prevention, we know of nothing better or cheaper than carbolic acid. Sulphuric or muriatic acid will answer as well. Both are cheap, and both useful for many purposes on the farm, provided you know how to use them, and take proper care of them, to prevent accidents.

Were foot-rot to break out in our flock again, we would separate those affected, and dress their feet every day with carbolic acid, and the severe cases twice a day. The great object is, to reach the germs or roots of the disease. The acid will kill all the germs it touches. But those which are below the surface, can be reached only by the absorption of the remedy, and if the sheep are turned out upon damp grass, the carbolic acid will be washed off, or greatly weakened. Sometimes the germicide, or cure, is applied to the foot in the form of a salve. It is bound on with a cloth. It is less trouble, however, to dress the feet every day. In saying we would separate those affected sheep, we do not wish to be understood to think that the other sheep need no attention. That is the common mistake. On the first appearance of the disease, every sheep and lamb, and every foot, and every hoof, and every toe, especially the parts between the toes, should be carefully and thoroughly washed with carbolic acid. In two or three days, go over the whole flock again, and if there are any new cases, separate them —not merely for fear of contagion, but for convenience in dressing them repeatedly. The first time of dressing will take longer than the second time. Many hoofs will need paring, and there will be dirt adhering to the feet and between the toes, which must be removed. It has been recommended to wash the feet. This is well, provided the washing is done not with water, but with carbolic acid. Any dirt adhering to the hoofs, or between the toes, must be saturated, and more than saturated, with carbolic acid, so that it will soak through to the parts below. If this is done, the dirt will do no harm, but rather good; if the dirt remains, it will hold the acid longer to the flesh and to the cracks in the hoofs. We have tried the plan of making a shallow trough and placing it in the door-way, and pouring in this carbolic acid to the depth of three or four inches. We let the sheep walk through it. But it does not answer the purpose. The sheep are afraid of it, and jump, and splash the acid about, and soon make a dirty mess of it. And besides all this, there is danger that some of the sheep may be pushed or fall down into it, and if their bellies are wet with the carbolic acid, it will certainly hurt them, and likely kill them. It is better to apply it as above.

Inodorous Closets.

It is strange that the most convenient and agreeable earth closet is not more commonly used on farms and other rural places. The constant threatening of danger from the usual vault or cesspool, is, or ought to be, so alarming, that every house should be provided with the inoffensive, and entirely safe contrivance, known as the earth closet. It does not follow that dry earth need be used. Sifted coal ashes, sawdust, dried muck, road dust, may all be used as well as dry earth. A subscriber (H. H., of Fulton, N. Y.,) sends us a drawing of an arrangement for converting an old "out-building" into a closet, which may be convenient. The bin *a*, at the top, is kept supplied with sawdust, which is

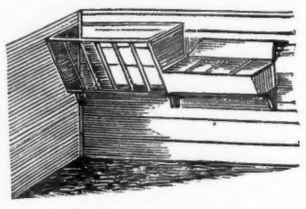


A CONVENIENT CLOSET.

let down by drawing out the slide *b*. Instead of a bin as here suggested, a box may hold the ashes or other absorbing material. There should be a scoop handy, and all who use the closet, should be enjoined to use it before leaving. The receiving box, *c*, is on wheels, and can be drawn away to the field or yard to be emptied. Where coal is burned, two ends are accomplished: an inodorous closet is supplied with absorbing material, and the removal of the ashes provided for. We have used with great satisfaction, for the past fifteen years, a closet at the house, and one at the barn, together with a commode for invalids, and can strongly recommend them. The deposits are emptied upon the manure heap or drawn directly to the garden or field.

Feed Box and Hay Rack.

For valuable animals, we prefer loose box-stalls. A range of such stalls can be built very cheaply, and as the occupants need not be fastened, they can be



FEED BOX AND HAY RACK.

quickly let out of the building in case of fire. The feeding arrangement for such stalls is shown in the engraving. It consists of a hay rack in the corner, with a feed box near it. At the front of the feed box there is a falling door in the partition, through which, when it is half let down in a sloping position, the feed of grain, or the cut feed, may be placed in the box. The same arrangement may be used for the hay rack, if the front is boarded up to the top; but if it is boarded only for five feet, the hay may be lifted over the top of it from the feeding passage. These conveniences are easily made.

Curing Clover Hay.

Ordinary grass, such as timothy, when cut by a mowing machine and left spread out on the land, will almost cure itself. The heavy spots will need to be shaken out, but a light crop, especially if the grass is too ripe, can be cut in a morning and raked up in the afternoon and put into cocks, and left then until ready to be drawn in. But clover requires more care. The stems are thicker and do not part so readily with their moisture. On the other hand, the leaves, which are the most valuable portion, are broad and soon shrivel up, and are quite apt to fall off and be lost. A crop of clover while growing, evaporates an immense amount of water every day. During the night this evaporation ceases to a considerable extent, while the roots keep on sucking up the water from the soil below. It follows from this, that a crop of clover contains much more water in the morning than in the afternoon. Other things being equal, therefore, the best time to cut clover, is in the afternoon and evening. You have far less water to get rid of. If you cut clover in the morning therefore, unless it is cloudy weather and the atmosphere is charged with moisture, it is desirable to rake it into windrows, and still better to make it into small cocks. On the other hand, if you cut clover in the afternoon, it contains much less water to start with, and as there is less to be got rid of, the clover will cure rapidly. In this state, rain or dew will injure it no more than it does while the crop is growing. It can be left spread out all night without harm. Its proper management the next day depends on circumstances. If the weather is uncertain, and you are anxious to get in the hay as soon as possible, you will go over the field in the morning, and shake out all the thick spots, and if the crop is a heavy one, it will be well to turn over the whole piece, or at any rate that portion of every swath, where the "divider" of the mowing machine has left the grass thicker. Immediately after dinner, and possibly before, start the horse-rake and pull the hay into windrows. If the hay is still green in spots, turn it over or open it out, one or both, in the windrows. Look out for thunder

showers and the Signal Service Report. A rain while the hay is in this condition, will hurt it seriously. If there is danger of rain, set all hands to cocking it up, and take hold yourself; but do not confine yourself to a row. You can do more good giving assistance where most needed, and seeing that the cocks are properly made. Now let us stop and think. Have we gained anything by the work we did in the morning by shaking out and turning the hay? Possibly not. But this is because we were afraid of a shower, and cocked the hay before it was fairly cured. If we wish to draw it in tomorrow, we shall probably have to open out the cocks in the morning, and an hour or two later turn the hay, and in the afternoon draw it in. Had we left the hay exposed all day, and turned it at the time we cocked, and then put it into cocks late in the afternoon, we could have drawn it in the next morning without more work. And the pitcher would have liked it better, because hay that has stood in the cocks all night can be pitched much easier, or at any rate, with far less scattering and loss of leaves, than that which is only just bunched up. The other plan of curing clover hay, is to cut it in the afternoon. Next morning, if need be, shake out any lodged portions, or where the machine has pulled it into wads. In the afternoon, rake it into windrows and cock it up with great care. Let it stay and cure in these cocks three or four days. If it is free from docks, mullein, thistles and other weeds, and if the weather is favorable, you will have nice, green, delicious hay, which has been cut and cured at the smallest cost of labor.

About Country Bridges.

The construction of rural bridges is frequently faulty, and a faulty bridge is a very dear one. Building bridges is a work that should be well done, or it will be useless. There are some points about it which should be well considered. First, the probable quantity of water to pass under the bridge—and ample room should be provided in order to avoid the loss of the bridge by a flood. A safe way is, to set the bridge high enough to give a way of escape around the banks, and if it is necessary to reach the bridge by an elevated approach, this should be of open timber work, and never of embankment. Second, the strength of the material used is of the greatest importance. As some guide in this respect, we give the following figures, which represent the safe center load for timbers ten to sixteen feet long, of the sizes mentioned, in pounds:

Feet	6 by 8	6 by 9	6 by 10	6 by 12
10	2,880	3,692	4,500	6,480
12	2,400	3,042	3,750	5,400
14	2,058	2,604	3,216	4,632
16	1,800	2,280	2,808	4,050

For a length of twenty feet, the load is one-half

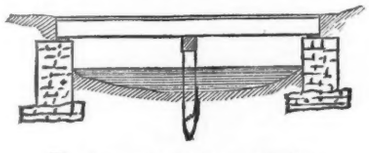


Fig. 1.—SUPPORT FOR A BRIDGE.

that of a ten-foot timber, and so on. Thus, four timbers in a sixteen-foot span of six by twelve inch timbers, will bear a load of eight tons; in a twelve-foot span, the same timbers would bear a safe load of nearly twelve tons. The support of the timbers is therefore the third point to consider. A center

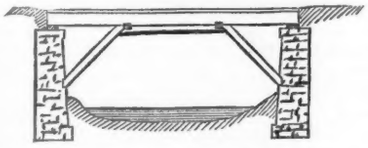


Fig. 2.—BRACES FOR A BRIDGE.

pier offers serious obstruction to the passage of the water in floods, and is apt to stop passing flood-timber—which, piling up against it, soon carries away the the bridge. Besides, it causes eddies in the stream, which wash away the sand or mud, and soon loosen the support. A row of piles (fig. 1), is the best support for a center timber, but braces, as

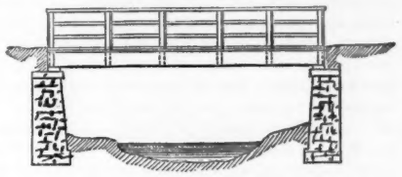


Fig. 3.—SIDE VIEW OF BRIDGE.

shown at figure 2, properly secured without weakening the timbers, will afford equal strength, and a better and safer passage for the water, and what may be floating. In fitting in the braces, the timbers should not be cut away, but the braces should

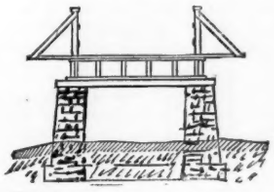


Fig. 4.—END VIEW OF BRIDGE.

abut against a string-piece, as shown in figure 2, which is bolted to the timber, thus giving much additional strength. The next point is, the safety of the public who use the bridge. A strong guard railing should be used for every bridge. It may save several lives. It gives confidence to the horses as well as to the drivers, and lessens the chance of an accident by the frightening of a team. Figure 4 shows how the guard rails are constructed, by bracing the posts to the ends of the cross beams.

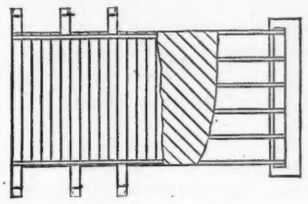


Fig. 5.—FLOOR PLAN.

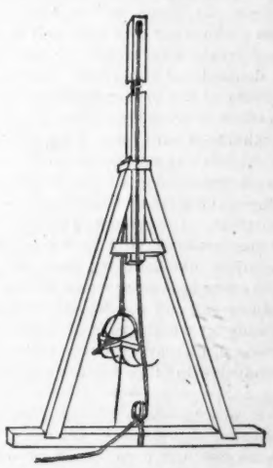
It is well to brace the posts, if only by a light brace of three-inch plank for every alternate post. The last point is the floor of the bridge. This should be strong and close, and sloping a little from the center to the sides to throw off the rain water, which would otherwise rapidly rot the bridge. The floor should be double, as shown at figure 5, one set of planks being laid diagonally, and the other set crosswise, to give security of footing to the horses. It should not be forgotten, that what is worth making, is worth preserving, and a bridge should be well painted. The red oxide of iron paint is cheap and very durable for such exposed work, and a bridge of this color looks well.

How to Make a Cock of Hay.

When hay is in windrows, there are two ways of putting it into cocks. One way is to make the row of cocks in the direction of the windrow, each man taking a windrow and making it into cocks. The other plan is to go across the windrows, and make the row of cocks at right angles to the windrows. In this case two men work together, one a right-handed and the other a left-handed man. If the windrows run north and south, and you start at the northwest corner of the field, intending to make the row of cocks run from west to east, a right-handed man throws the hay in the windrow about three yards to the south, while his mate, a left-handed man, throws three yards of hay to the north, and the two together make it into a cock, and go on to the next windrow, and thus proceed until they come to the northeast corner. Then they turn back, the right-handed man throwing the hay north, and the left-handed man throwing it south, until it meets in the center, and gets itself made into a cock. In America our atmosphere is so dry, that making hay is an easy matter. The hay almost makes itself, and one would think that many people have an idea that the hay will make itself into cocks. But it will not. We must take a little pains. By this we do not mean that you must stop to fuss over the cock, and go round about it. Time is too precious. You must do the work rapidly, and do it well, and this means that you must know what you are about, and make every stroke and motion of the fork tell. Pushing or throwing hay into a bunch or heap, is not making a cock. A cock of hay is a miniature stack. We want to make it so that it will shed water. In making a stack, the first and most important rule is to "keep your middle full." And so it is in making a cock. The middle or center of the cock must always be the highest—not when you finish merely, but at all times from the start to the end. And in fact this is all there is to it. Dressing up the cock by trimming it up at the bottom, and raking down the sides with the fork is all very well, but unless the cock is well made from the start, one of our heavy showers will go right through it. In old times, before mowing machines, and steel rakes, and unloading forks, when the labor of making hay was far greater than at present, and when we wanted to save it after we had got it, the old man told us young ones, to "always turn your fork." We were not allowed to take a forkful of hay and set it down on the cock, but we must lift it up above the cock and and turn it over, so that the fork, instead of being under the hay, should be on top. In our own practice we do not always adhere to this plan when starting the cock, but in putting on the last two or three forkfuls, "turn your fork" should be the invariable rule. There is no special advantage in making excessively large cocks. In this climate, a cock four to five feet in diameter at the bottom, and about five feet high, if well and compactly made, will answer.

A Hay Derrick.

Mr. Joel S. Munson, La Fayette Co., Wis., writes us that he has made a hay derrick, which is very convenient to stack hay out-doors. The two side-pieces are mortised into the sill; the mast, or top stick, is not fastened, hence it can be taken out when moving any great distance. When moving only a few feet, you hitch a horse to the sill, and drag it endways without taking it down, to where you wish another stack. The derrick and horse are on one side of the stack, and the load of hay on the other. The derrick stands at almost forty-five degrees, and is



HAY DERRICK.

held in place by guy ropes—two guy ropes opposite to the load, and one on the same side as the load. A solid piece of plank is used for the foot of the mast, which is mortised into it. It is best to use bolts to put it together, as nails are apt to break.

Bee Notes for August.

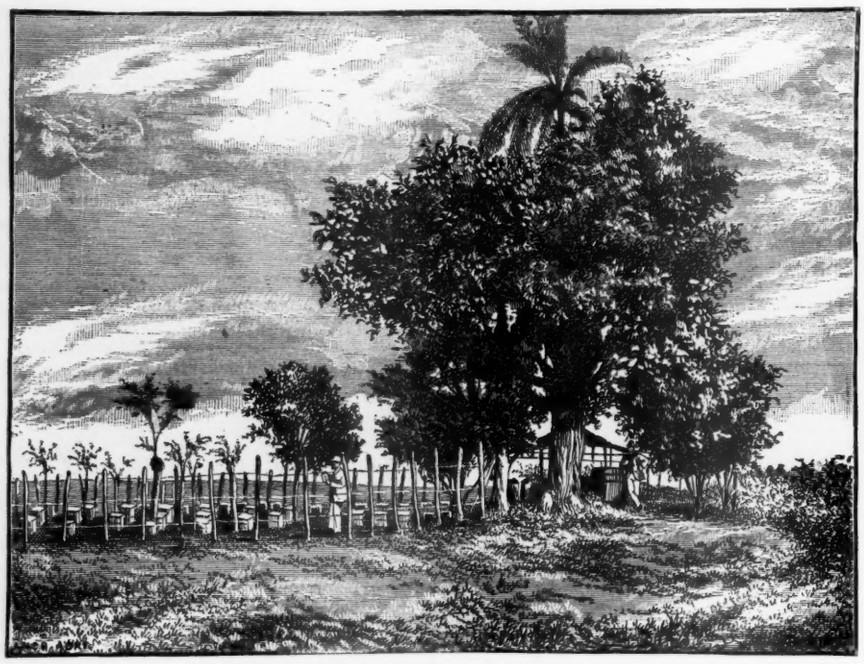
L. C. ROOT, MOHAWK, N. Y.

Beekeepers are liable to make a mistake at this season, either in supplying their stocks with surplus boxes, or extracting honey too late. We should keep in mind the conditions of successful wintering. I am fully convinced that the cause of the heavy losses in bees during the winter, may be found in the conditions produced by securing too large a yield of surplus honey, and too little attention to proper preparation for wintering. The gain in quantity of honey secured, is much less than the resulting loss sustained in bees. If the colonies store late in the season, more honey than is required for wintering, the combs containing it can easily be removed, and preserved for use when needed in the spring. This late gathered honey, which is usually of poor quality, if properly used, will be found as a rule, to be worth more to the beekeeper, than will be realized for it when sold. Much might be written upon the great need of obtaining less honey than usual, and the importance of making every effort to produce only that which is fine in quality, and in the best marketable shape. The honey market has become much unsettled; this is largely the result of a great effort on the part of beekeepers to secure large yields of poorly cured honey, both in the extracted form and in the comb, partly sealed in scantily filled boxes. What the honey market of the future is to be, will depend greatly upon the action of the beekeepers. We must first perform our own part well in producing a standard article, after which we may make reasonable demands of the trade. Having brought our products up to a proper standard, let us make suitable effort to bring them into notice. Well arranged exhibits at our County fairs, will do much towards establishing a profitable home trade, which is of great importance to every beekeeper. We have injured ourselves by neglecting to create such a home market. The custom of sending our honey from all quarters to the New York market, has done more to injure our industry, than any other one thing. If every beekeeper would realize the truth of this statement, and do his part in establishing a home trade for a high grade of honey, we should soon have as firm a market for our various products, as do producers in other branches of agriculture.

LATE PLANTING.—Late planted crops sometimes turn out better than those planted early. This is especially the case with corn. Corn grows slowly in cool weather, but makes a rapid growth in hot weather. Frequent cultivation, too, will push crops forward. Corn, potatoes, beans, and mangels, which have been cultivated once a week, although planted a month later than the earliest plantings, have overtaken and passed the latter, and have made a heavier and more satisfactory growth.

The La Fe Apiary in St. Domingo.

The increase of honey production in tropical and semi-tropical regions, under the attention of the scientific apiarist, is very remarkable. The sugar cane, even on sugar plantations, has a rival in the Apiary, which under skillful management, yields most profitable returns. We were never more impressed with this, than after discussing and analyzing last month, the labors and results of Mr. L. J. de Sebotkar, of the Apiary at Ingo La Fe, Santo Domingo, W. I. There are, it seems, three sugar estates, called L'Esperanza, La Fe and La Caridad, which mean, hope, faith and charity. The apiary under Mr. Sebotkar's charge, is on the La Fe estate, about a mile and a half to the windward of the sugar works—for the island being in the region of the trade-winds, the wind blows quite steadily from one direction during the greater part of the year. The bees cannot carry a load so far against the wind: hence they do not go to the sugar houses, where they would not only be annoying, but would simply rob the sugar mill, to fill their hives with syrup of poor quality. The intervening space between the apiary and sugar houses, is covered with plantations of cane, with more or less interval, land not under culture, roads, hedge-rows, etc.; and near by is an extensive tract of forest. The apiary is conducted for extracted honey, and so managed that the honey of each kind is kept almost entirely separate. After trying several kinds of hives, and making numerous modifications to adapt them to his practice, Mr. Sebotkar finally settled upon a two-story frame hive—a modification of the Van Duzen pattern.



THE LA FE APIARY IN ST. DOMINGO.

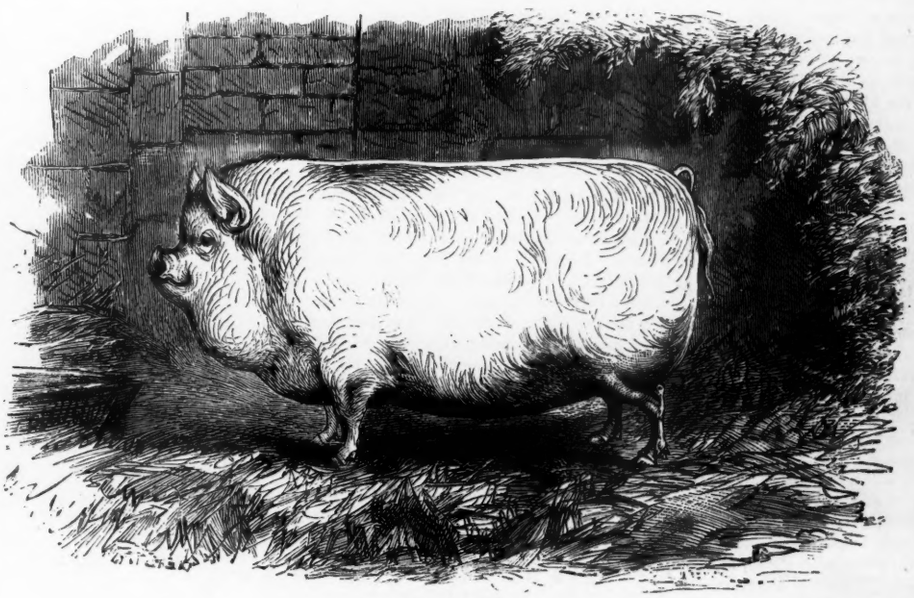
Drawn and Engraved for the American Agriculturist.

The bee-pasturage is largely from the forest, but the best honey comes from the Bell-flower, or Campanita. This is a vine which blooms in the waste land between the forest and the plantations, and along the fence-rows and borders of the roads. Its blooming is preceded a short time by another plant, called the Indian-vine, which is the earliest blooming of the valuable honey flowers, yields a darkish honey, and is inclined to granulate quickly. Its period is the month of November, and it is followed by the Campanita above alluded to, which is in turn succeeded by the fruit-bloom plums, Mesples or Sapodilla, Alligator Pears, and after these, by the Royal and other Palms. The Royal Palm is fruitful both in honey and bee-bread, and the tree itself is an almost indescribable blessing to that region. After this, the blooming of the orange and its kindred commences, and continues during March and April. The sweet orange blooms first, and the honey secured from its flowers, can be easily saved unmixed with that of the bitter orange, which follows. The latter honey has somewhat the flavor of the bitter fruit, which is however not at all disagreeable, but highly prized by many persons. By keeping close watch of his frames during the blooming of certain flowers, and emptying them when filled and just ready to be capped over, Mr. Sebotkar finds no difficulty in preserving the different crops by themselves.

After the orange flowers, there are later blooms of wild flowers, but the honey is not extracted for market. The season of dearth of flowers, comes during the very hot, dry weather of August and September, during which time Mr. Sebotkar feeds up his stock, using a syrup made from the best sugar. In this way he secures strong stocks for active work in November. Under this management, the colonies swarm naturally in October, and natural swarms are preferred, but second swarms are not taken if it can be avoided. The accompanying engraving represents a portion of the La Fe apiary. It is surrounded by a barbed wire fence. The figure in white is that of Mr. Sebotkar. The great tree is called the "Trinity tree of La Fe." It is primarily a hard-wood tree, called the Acoba. Upon it is a parasitic plant, the Wild Fig, which has nearly, or quite killed the Acoba, and into the heart of this, some bird, no doubt, dropped the nut of a Royal Palm, which grew. The palm tree may be seen towering above the foliage of the Wild Fig. It is now old enough to produce blossoms and fruit every year. The group of objects under the tree, are old "bee-gums"—palm stems from which the pith has been removed, and which have been used for hives—the bees having been transferred to others. The puncheon under the tree is used as a stand upon which the out-door feeder is placed. Plum trees are planted within the enclosure and among the hives for shade. The black spot upon one of them is a nest of one of the varieties of wood-eating ants. The ants have been destroyed by arsenic, and it is unwise to show them the least quarter, for they would soon destroy the wood of the hives and stands. The honey house is not shown. It is a simple structure, farther to the left, with wire-gauze doors and windows, and a roof of zinc, the object of which is to increase the heat, and so "ripen" the honey faster. The entire apiary is conducted on the most approved system. Mr. Sebotkar, being the only scientific apiarist on the island, has been doing pioneer work, and his system is based on his own experience. He uses "foundation," and thus saves both time and honey, for it takes twenty to twenty-five pounds of honey to make one pound of wax: so by means of his comb-foundation, he saves much honey, and for the bees, nearly, or quite, three weeks' time, during which some flowers would pass entirely out of bloom. The product of the apiary is shipped chiefly to New York, in twenty-five gallon barrels, or in Root's iron-jacket cans, holding ten gallons each, and brings him ninety to ninety-five cents a gallon, after paying twenty per cent duty. Mr. Sebotkar's success will no doubt lead to the establishing of apiaries in other tropical countries.

The Small Yorkshire, or Small White Pig.

In May last, (p. 197), we gave some account of the work of the English breeders, in abolishing the various local names for white pigs, and classing them as "Large," "Middle," and "Small White" breeds. As there stated, the old Yorkshire breed, one of the largest breeds known, and as coarse as it was large, was the original of the three breeds above mentioned. The "Small White" breed was produced by selections from and various crossings upon the old Yorkshire, notably with the Cumberland, on which account the breed has been, and is occasionally still, called the York Cumberland breed. The small Yorkshire breed is well represented in the engraving, taken from a typical English specimen. One of the celebrated pig-breeders of England, Mr. Mangles, says of this breed: "The small Yorkshire is different from any other breed I have seen. It has a short head, small, erect ears, broad back, deep chest, and short legs, with fine bone. It is always ready to fatten, and turn to account, either in the way of roasters, small porkers, small bacon, or medium. Three or four of the small breed might be fed well, and kept fresh and symmetrical on the food which would barely keep one lean and gaunt, large Yorkshire." Another English writer says: "No animal of the pig species carries so great a proportion of flesh to the quantity of bone, or flesh of as fine a quality, as the small Yorkshire, or can be raised at so small a cost per pound. With common store food, they can always be kept in condition—with common care, and slight addition to food, they are ready to be killed for porklets at any age." All the testimony abroad, as well as at home, points to the small Yorkshire or Small White breed, as possessing those qualities which make it desirable as the family pig. Those who can not overcome their prejudice against black, for the pet porker, will find the small Yorkshire quite suited to them.



SMALL YORKSHIRE PIG.

Engraved after Weir for the American Agriculturist.

The Centrifugal Skimming of Milk.

The almost perfect separation of the cream from milk by the centrifugal separator, is an instance of the wonderful results of the application of natural laws in small things. The difference between the specific gravities of milk and cream is so small, that twenty-four to thirty-six hours are required to effect the separation between them in the milk-room; but by the use of centrifugal force in a confined receptacle, the heavier milk is thrown off from the lighter cream in a few minutes, in a manner so nearly perfect, as to leave no more than one half pound to one pound of butter in one thousand pounds of milk. This almost perfect separation of the cream, is so great a saving, that the cost of a machine is soon saved in the quantity of butter gained, and it is an unfortunate circumstance that many dairymen are denied the benefits of this machine because of its large size. The smallest machine now made requires the milk of at least thirty or forty cows to supply it, and the ten-cow dairy must do without this improvement. If a machine could be made to operate by hand, or by dog or pony power, that would separate the cream from from eighty or one hundred pounds of milk, or even less, it would be a great help in small dairies. Such a machine would encourage the owners of the smallest dairies to increase their stock and to enlarge their products, so as to enjoy the benefit of a separator. It would be a great incentive to better farming, just as other useful dairy appliances have been, and a great saving of labor.

Walks and Talks on the Farm.

New Series.—No. 14.

JOSEPH HARRIS.

"That is not the trouble," said the Doctor, "he works hard enough—he hoes his row, but he does not hoe it early enough. He is always a little behind. I would like to shake him."—"Jacobs beats us all," said the Deacon. "His wheat, and barley, and oats, and corn, and potatoes, are all good."—"Good," said the Doctor, "they are superb. And his farm is in the most perfect order. Everything about the place looks neat, and tidy, and thrifty. His land is no better than his neighbors'. He started with nothing, and has made at least one hundred thousand dollars clear money by farming—and farming only. And the great secret of his success is forethought and energy. He thinks and works. Some people think and do not work; some work and do not think. He does both. He never seems to be in a hurry. There is no waste motion. He simply does the work, and does it well, and just at the right time."

When Ezra Cornell got back from Europe, I asked him what particular feature of English agriculture impressed him most.—"The evenness of the crops," was his reply. "We grow as big crops here, on part of the fields, but there are too many poor spots. That is the reason that our agriculture makes such a poor showing in statistical tables." Since then, English farming has rather fallen behind, while we have gone ahead. We are certainly farming better. We have better implements and machines, better horses, and better men and boys to drive them.—"Hold on right there," said the Deacon. "I do not see how that can be."—"It is so, nevertheless," said the Doctor, "and the reason is evident. We have better schools, and as compared with former times, when there was much chopping to be done, there is little doing in winter, and the boys can go to school. Then, much of the hard work is done by machinery, and there is not only less physical exhaustion, but the use of machinery is, to some extent, an education in itself. A boy that runs a mowing machine, or a reaper and binder, if he does not work too many hours, or has too many chores to do night and morning, will be brighter and more active than the boy who binds after a cradler, and waits on his highness. I hail with pleasure every invention that lessens hard work on a farm—especially for the boys, and girls, and women. Tough old men like the Deacon, can stand it—or shirk it. In many parts of the old country, they make the men and boys walk when driving a wagon. I like to see a boy ride and drive. I want to see him ride, not only on the reaper and mower, but on the roller, the plow, the cultivator, and especially on the harrow. It is no harder for the horses to draw a one hundred and fifty pound boy, than one hundred and fifty pounds of useless timber and iron. If his weight presses the harrow too deep into the ground, make the harrows wider, and put on three horses, or if need be, four horses abreast. Do not tell me it can not be done. The age that has given us the sewing machine, the telegraph, the telephone, the reaper and binder, and trains that go from New York to Chicago in less than a day, and steamers that cross the Atlantic in six days, ten hours and ten minutes, and horses that can trot their mile in two minutes and nine and three-quarter seconds, can certainly give us a harrow on which a poor boy can ride over the clods."—"Well, never mind all that," said I, "we are certainly farming better, and I think we have better implements, better horses and better men—though there is still abundant room for improvement. Everybody says farming is a poor business. Even city people now say so. It is quite a common remark. We farmers always knew that the profits were quite moderate in the best of times, and not unfrequently it was hard to make both ends meet. And even then when we met a friend in the city, he would talk about 'you rich farmers.' It is not so now. People with any sense know that farmers are not doing well. The fact has been brought home to them. All classes feel the hard times, and the more they study the subject, the clearer it appears that when farmers have little to sell, or when prices are below the cost of production, they can not buy, or if they buy, they can not pay. What then? Shall we stop farming? We cannot if we would, and if we are wise, we would not if we could. Our true plan unquestionably is, to farm just as well as we know how. My German neighbor makes money every year. He has good horses, good boys, and good plow points. There is no dodging the hard spots. And the result is, that as Mr. Cornell expressed it, his farm is distinguished for the 'evenness of the crops.'"—"You writers," said the Deacon, "talk as though it was the easiest thing in the world to secure good crops. But I believe most of you can preach better than you can practice. You do not look to your plow points any better than the rest of us. You would have fewer thistles and better wheat, if you had."

The Deacon is right. It has been one of my many mistakes. I am a good cultivator, but a poor plower. I wish that I had cultivated not less, perhaps, but plowed more and better. The longer I live, the more faith I have in the plow. It is the best and most simple of all implements for tilling the soil. By plow, I mean any implement that has a point, a share, a mould-board, and a landside. A gang-plow is my delight; a "shovel-plow" is not a plow at all. We are using a gang-plow to-day. It does better work than a common plow, and

twice as fast. It turns over three furrows at once. The three furrows are about as wide as two, ordinary furrows. The ground is all cut over, and at this season of the year it is a grand tool to kill thistles. I put in my first crop of wheat on this farm, thirty-five years ago. The implements I then had were: a plow, a triangular Geddes harrow, a log-roller, and a two-horse cultivator. These were all the implements we had for preparing the land for wheat. A cradle and a hand-rake was all that was needed for cutting and binding the crop. Since then, among the machines and implements which have come to stay may be mentioned, the mower, the reaper and binder, the steam thrasher, the unloading fork, the steel and chilled iron plows, the revolving steel coulter, the jointer-plow, the gang-plow, the revolving disc harrow, or as we call it here the "pulverizer," the Acme harrow, the spring-tooth harrow, and the iron roller in three sections. All these are extensively and very generally used. The grain drill and fertilizer attachment, is justly considered almost indispensable. With all these improved implements, and bright, active young fellows to use them, we ought to raise better crops—and we do. The Doctor was going to say something about exhaustion of the soil. But it is not necessary. Thirty-five years ago the agricultural papers had more to say about the "exhaustion of the soil" than now. The fact is, it was then and is now a useless speculation. I will not call it theory. Our land has lain idle for a good many thousand years, waiting for the most wonderfully active and energetic people on the face of the whole earth, and they will not stop to listen to those who talk about the exhaustion of the soil. And in this they show their good sense. When phosphate is needed, we will use it; and so of any other ingredient of plant-food, but we will have no fears of exhaustion. There are plenty of scourges to whip us into active exertion long before there is any danger of soil exhaustion. The potato bug soon teaches us the advantage of richer land and better cultivation. Our wheat "turns to chess" long before the soil is exhausted. If it was exhausted, the chess would not grow any more than the wheat, as both crops require the same elements of plant-food. I need not say that I do not believe wheat really turns to chess, but you will know what I mean. When the wheat winter-kills, or the Hessian fly destroys it, we get weeds instead of wheat. And in our efforts to head off these difficulties, we shall use the very means necessary to enrich the soil, to kill rust and all the evils that wheat is heir to. Half our farmers in this section, were obliged to replant much of their corn this year. It was not owing to poor seed or poor soil. On nice, warm, dry, mellow land, the seed came up, but not on the hard, wet, lumpy, cold spots. It is not exhaustion. The remedy is under-draining and better tillage, and more manure, or plowing under green crops or sod. In other words, the cure for the evils, which are ever present with us, will be the cure for or prevention of the exhaustion of the soil, which some writers threaten us with. There is no sort of danger. We should be ruined long before the soil is exhausted, or we should pull up stakes and go West.

"Speaking of insect troubles," said the Doctor, "I hear great complaints, and judging from my own little garden, there must be good reason for them. My onions are half of them destroyed by maggots at the roots; and I have set out cabbages and cauliflowers three times already, and not half of the plants are living, and these are so affected with lice, that I almost wish they would die and have done with it. A market gardener told me to-day, that he sowed three pounds of good cabbage seed, and did not get five thousand plants. The black beetles riddled the leaves and stopped their growth, and the maggots, at the roots, easily finished them. I suppose there is no remedy."—"Rich soil," said I, "thick sowing in rows, and the liberal use of superphosphate, followed by repeated hoeing between the rows, will, at any rate, greatly lessen the evil in the seed bed. After the plants are set out we can do little. There is, however, plenty of time to raise winter cabbages and cauliflowers. Such varieties as Henderson's Summer and Winningstadt, can safely be planted for winter cabbages as late as the middle of August, and such excellent varieties as Excelsior Flat Dutch, Premium Flat Dutch, and Fottler's Drumhead, will do well sown the last of July, and first of August. But, of course, much depends on the season. We have had such a backward spring, that we are hoping for a long growing time in autumn. Early frosts we shall doubtless have, but these do not hurt cabbages.—"It is a pity," said the Doctor, "that the public taste calls for big cabbages. Smaller heads are a great deal better. I would rather have a Winningstadt cabbage for my own eating, than the biggest Mammoth of them all. When Dr. Thurber was in England, he spoke enthusiastically of the cabbage served him at the hotels. They call these big kinds 'cow cabbage.' They bear the same relation to a nice, small, tender cabbage, as mangold wurzels do to nice table beets. I have no doubt that Henderson's Summer would make a good winter cabbage, if set out in August. And the Snowball cauliflower, which is doubtless the earliest of all varieties, would also give us good cauliflowers late in Autumn."

"I do hope," said the Doctor, "you farmers will put in a large area of wheat this year, and put it in early, and what is still more important, get the land in good, mellow condition before sowing, and drill in phosphates with the seed. It looks now, as though the era of extreme low prices would soon come to an end. Riding about the country, I see many fields of poor wheat and some good ones. In nearly every instance, the good wheat was drilled in with phosphates. It is astonishing what an effect the phosphates have when drilled in with the seed. Sometimes the fertilizer attachment does not sow for a few rods, and you can see to an inch where the phosphates stopped. And many farmers leave a strip across the field without phosphates. The difference between the phosphated wheat and the strip where no phosphates are sown is so great, that it would seem that no farmer in this section would think of putting in wheat without phosphate." All the Doctor says is true. We must not only use phosphates, but the land must be in good order. Good tillage is essential. Phosphates will not take the place of clover sod or manure, or draining, or good plowing. Our rotation of crops here is generally: first year, clover or grass sod plowed in the spring and planted to corn, potatoes or beans; second year: barley or oats, sown in the spring; third year: winter wheat seeded with timothy in the autumn, and clover in the spring. My neighbor, the Squire, who has two or three large farms, and perhaps a hundred acres of apple trees in bearing, raises a good many peas. He plows up sod in the spring, and drills in the peas, and follows them with wheat in the fall. Others sometimes do the same thing with beans; but as a rule, it is not found desirable to sow winter wheat after the beans, peas are better.

Occasionally a farmer adopts the good old plan of sowing wheat on a clover sod—plowed in June or July, or even in August.

But no matter what rotation is adopted, one thing is of great importance to the grower of winter wheat. The soil must be so worked and managed, that it will contain moisture enough in September to ensure the prompt germination of the seed wheat. "That is so," said the Deacon, "but how are you going to get it unless we have a good soaking rain? I have been farming over fifty years, and have observed that it seems to rain easy when the hay is all spread out, or when we are drawing in wheat, but after harvest, when we want to plow, the ground is as hard and dry as a brick, and we have no rain that amounts to anything for weeks. One would think to hear you agricultural editors talk, that it is the easiest thing in the world to get rain when we want it. You say we 'must work the land so as it shall contain moisture enough.' If it does not rain, where are you going to get the moisture from?"

We must get it out of the ground. One of my men hoed up a patch of thistles to-day, and I called his attention to the fact that an hour afterwards, the ground around each stump was wet. Where did the water come from?—"Out of the thistle," said the Deacon; "we all know that thistles and many other plants will bleed."—That is not the right idea. The water comes from the ground. The thistle pumps it up. If we had not cut off the thistle, this water would have been evaporated through the leaves. The quantity of water which plants pump up out of an acre of soil, is very great. If it was not in the soil, the plants could not pump it up. They would wither and die. Sometimes in August, when you are afraid of running short of water, I have seen you put a lock and chain on your pump, to prevent passers-by from pumping up the water. You can not secure the thistles in the same way. They will keep on pumping in spite of you. The only way to stop them is to kill them. Let it be understood that no matter how dry and hot the weather may be in August, there is plenty of water in the soil, or at any rate in the subsoil. But if you have just harvested a crop of barley, or oats, or peas, the soil is dry for a foot deep, or probably deeper. The plants have been pumping up the water. And after harvest, if there are any weeds, they keep on pumping up and evaporating the water. Kill them. This is the only way to stop the pumping. All our successful wheat growers understand this, or at any rate, they practice the very means best adapted to conserve the moisture in the soil. They harrow, or cultivate, or plow the stubble, as soon as the crop is harvested. Any method that will kill the weeds, and pull up or bury the stubble, will answer the purpose. If you can plow the ground deep and well, that is the better plan. If the soil is so dry and hard that it is impossible to plow it properly, some other method of killing the weeds must be adopted. Perhaps a gang plow, that will scratch up the soil an inch or two deep (of course the deeper the better), will answer the purpose. The dead weeds, and pulled up stubble, and loose soil, will act as a mulch, and check the evaporation of moisture from the soil. And the water in the subsoil will ascend, and gradually moisten and soften the surface soil, and rain or no rain, sooner or later, you will be able to plow the field as it ought to be plowed.—"That is so," said the Deacon, "but you will want good points, and plenty of them."—"We have the best climate in the world for killing weeds," said the Doctor, "and of all months in the year, August is the best time to kill thistles, and quack, and most of our weeds. I wish we had a steam plow to do the work, but until we have, I suppose there is nothing better than a good three-horse plow for hard land, or a three-horse gang-plow for light land. The thistles and other weeds must be killed in some way; if we cannot do this, we must abandon all hopes of good crops and profitable farming."

A Water Trough for Cattle and Horses.

This form of trough will be found useful where water is continually running from water logs, and is designed to prevent freezing and overflow. At

A WATERING TROUGH.

one end, as in the engraving, a board is fitted across the trough, and goes to within about one inch of the bottom. The water must flow under this to reach the outlet. This portion of the trough has a cover with a hinge. It will be seen that with this construction no straw or rubbish can get into this covered portion to clog the outlet, and thus cause overflow. This protection is usually sufficient in the winter to prevent the outlet from freezing. But a plug is inserted in the bottom of the trough, which can be taken out when the trough needs cleaning, or in very severe weather.

The Classification of Peaches.

The many varieties of peaches have long been arranged in two great divisions, according to the adherence or non-adherence of the flesh to the stone of the fruit, or into Clingstones and Freestones, as they are called in this country. In England, the terms Pavies and Melters are frequently used for these divisions, while in some localities in France clingstones are called "Male," and freestones "Femelle." As varieties have multiplied, a number have been produced in which the stone and flesh do not separate completely, and are not sufficiently adherent to be classed among the clingstones. As a consequence, there are a number of peaches which some pomologists have placed in one division, while others refer them to the opposite. The "Amsden," "Alexander," "Early Beatrice," and others are intermediate in character, or "betweens." To meet this difficulty, M. Carrière, in "Revue Horticole," of which he is one of the editors, proposes to make three divisions among peaches—those with the flesh adherent, half-adherent, and non-adherent, or in our terms, Cling, Half-cling, and Free. There is no difficulty with the free stones, as when the fruit is quite ripe, the flesh parts from the stone completely. There may be a doubt, whether a variety should be referred to the cling or half-cling division. M. Carrière gives the following method of deciding this. The peach, which should be thoroughly mature, is to be cut in small slices, and if the stone can be clearly seen between the portions of flesh that are firmly attached to it (the stone), the variety belongs to the half-cling class. The three classes are illustrated in the "Revue Horticole" by

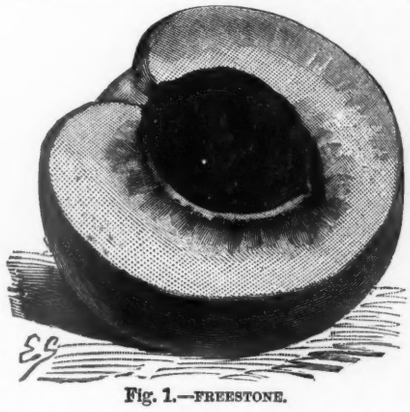


Fig. 1.—FREESTONE.

engravings which we reproduce. Should this new classification meet the approval of our pomologists, it will probably be adopted by the American Pomological Society. Our pomologists and peach-growers should test its practical value, and be able to report at the meeting to be held in September next.

Strawberries Next Season from Pot-Layered Plants.

It is nearly twenty years since we first recommended those who wished to have a strawberry-bed that would bear fruit the next year, to set out in August or September, plants that were layered in pots. At that time, one could not make use of these plants unless he layered them himself. At the present time, this method is so general, that nearly every grower of small fruits, and each general nursery establishment, offer each season the leading varieties in pots; some, indeed, make it such a prominent feature, that they issue special catalogues of pot-layered strawberries. Such plants, it is true, cost more than natural layers—that is, those from runners that have taken root in the soil of the bed. The difference in price is not very great, and there are so many who prefer to pay it, to waiting a whole year for strawberries of their own growing, that the sale of such plants is now an important part of the business of those who sell strawberry plants. These pot-layers, if set out this month, or next, if in good soil, will with proper care, give a good crop, if not a full one, next season. We were quite amused, a few years ago, to see this method announced in a French journal as a new discovery, and one likely to revolutionize strawberry culture; in this country it has been practised these many years, and is

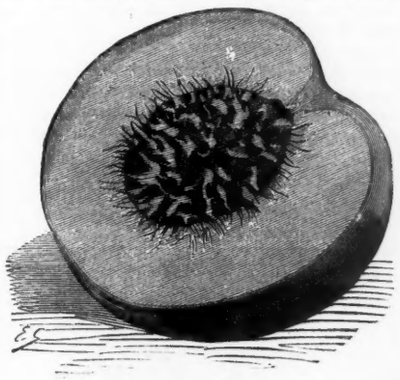


Fig. 2.—HALF-CLING.

gaining in popularity. The advantage of this method is due to the fact, that when an ordinary strawberry plant is set out—such plants being runners that have taken root in the bed where the parent plants grew—it must grow a whole season in its new place, before it can bear a crop. Such plants may, and often do, produce a few berries here and there, but nothing like a crop. Had these plants remained in the old bed, they would have borne fruit. In taking them up, the roots were broken, and the plant so checked that, when planted again, it must have a whole season to recover, and to prepare its blossom-buds. Pot-layered plants are prepared, by filling small pots with a rich compost, and plunging them in the soil of a bed, down to the rims. The end of a strawberry runner, or rather the bud, or the unrooted plant at the end of a runner, is laid on the soil in one of these pots, and held in place by means of a clod, a small stone, or a peg of some kind. Roots will soon form and strike into the soil of the pot, instead of the soil of the bed, and usually having richer soil, the young plant will grow rapidly. When it has abundant roots, the runner connecting with the old plant is to be severed, and the plant removed to a bed near by. The bed being prepared, the ball of earth containing the roots is turned out of the pot, and at once planted in the bed, the soil being watered if dry. The roots of the plant are not disturbed, and the growth is not at all checked, but goes on just as if it were an undisturbed layer that had established its roots in the soil of the old bed.

The Cedar of Lebanon.

The Cedar of Lebanon, besides being a tree of historical interest, is, on account of its picturesque appearance, of great value in ornamental planting. When young, the tree presents a conical outline, but as it increases in age, its shape changes. Its trunk is massive, and its numerous branches spread horizontally. The branches are arranged in successive whorls, or stages, one above another, and

CEDAR OF LEBANON.

thus give a peculiar aspect to the tree. There are, in the vicinity of New York City, several fine old specimens of the Cedar of Lebanon, and it is regarded as generally hardy, provided it is given a suitable soil. The soil should be open and well-drained. In such a soil the growth is slow, and has time to be well ripened before cold weather. It is believed that in those localities in which the tree has failed, its lack of success is due to an unsuitable soil, rather than to the severity of the climate. Our reason for referring to the tree at the present time, is on account of its fruit or cones. The fancy fruit stores of large cities, sell all kinds of tropical, and other unusual fruits, and frequently have rare cones, which they sell to lovers of the curious. Among these is occasionally a lot of cones of the Cedar of Lebanon. These are attractive on account of their peculiar shape, and the very numerous, broad, thin scales, of which they are composed. It is probable that those who sell these cones, do not know to which tree they belong, as every now and then a cone is brought to us for identification. The engraving shows the shape of the cone, the real size of which is from three to five inches long, and from two to two and a half inches broad. There are several varieties.

A New Insect Enemy to the Pea.

Heretofore, the chief insect with which the pea-grower has had to contend, is the well known Pea Weevil, *Bruchus pisi*. This is a native insect, which, in some parts of the country, is very destructive. The mother weevil lays her eggs upon the tender young pod; the grub which hatches from the egg eats its way through the pod, and into the just forming pea. The pod, etc., at this time being in active growth, the wounds made by the young grub soon heal, leaving a minute scar, which can only be seen upon close examination. The young pea grows, and so does its tenant, the grub, which lives upon the substance of the pea. By the time the seed is ripe, the maggot will have made its

Fig. 3.—CLINGSTONE.

growth, and gone into the pupa state, and by planting time the next spring, the perfect weevil is ready to come forth and continue its destructive round. The weevil is so common, that seedsmen find it difficult to select localities in which it is not known, where their seed-peas may be grown. Now there comes another, and more serious enemy to the pea. Visiting a farm, near Buffalo, N. Y., soon after the middle of June, our attention was called to the peas, which were certainly in a bad plight. In some rows there were wide gaps without a healthy plant, and all through the patch there were enough yellow and dying vines, to give the whole an unhealthy appearance. The farmer had already discovered that the destruction of the vines was due to the presence of a grub at the root. No insect was discovered about the pea patch, early in the season, and it can not be ascertained what insect causes the trouble, until perfect insects can be raised from the grubs or larvæ. This we have arranged for, and hope to know in due time, the perfect insect, and the best way of attacking it. This is a most serious matter to pea growers. The young vines, when three or four inches high, suddenly turn yellow, fall over and die. No warning is given, and one is not aware of the presence of the enemy until the mischief is done, and the plants past all help. We wish to know the present extent of this trouble; and if any of our readers in Western New York or elsewhere, have noticed a similar destruction among their own peas, we hope they will inform us, adding any particulars that may contribute to a history of the insect.

Sowing Winter Wheat.

It is not necessary to get the surface of the soil fine and smooth for winter wheat. The late George Geddes said: "He would not let a man roll his wheat, if he would do it for nothing." He liked to see small clods on the surface, as they protected the young plants. All are agreed, however, that the soil underneath must be fine enough and moist enough, to start the seed. Wheat likes a firm soil. What we call "clay spots," if drained, and well plowed, and made mellow enough underneath, produce the best wheat in the field. But we need careful plowing, and on such land it is not easy to get along without a roller. In fact, we have to harrow and roll, and roll and harrow repeatedly, to get enough fine earth to cover the seed. On such land, a drill is almost indispensable. It puts the seed down deep enough to reach the moist soil, while if sown broadcast, much of the wheat would dry up among the clods. Thirty-five or forty years ago, when the Hessian fly injured our wheat, it was not considered safe to sow wheat before the 10th of September, and from that to the 20th or 25th of the month. But in 1855, the midge appeared. This insect attacked, especially, the late crops of wheat. We looked for earlier varieties of wheat, and practiced earlier sowing. Some farmers sowed as early as the last week in August, and very many aimed to get in all their wheat by the first week in September. For many years, the midge has not troubled us; but farmers still find it desirable to sow early. Occasionally a crop is injured from too early sowing, but taking one year with another, experience seems to indicate, that it is better to sow on the 5th of September than on the 15th, and still more so than on the 25th. If, as some fear, the Hessian fly is about to visit us again, we shall be compelled to sow later. And if so, we shall have to make our land richer. Probably those of us who drill in superphosphate with our wheat, will find it better to use a higher grade article, containing a higher percentage of ammonia or available nitrogen. We shall want something to give the plants a good start, and push them rapidly forward. By this, we do not mean to say, that the plants can be pushed out of harm's way from the Hessian fly; but the extra plant-food will, to a considerable extent, make up for the delay in sowing; and in many seasons give us larger crops than we should have if we had sown earlier without manure, or with nothing but plain superphosphate.

Cleaning Dairy Utensils.

The want of thorough cleanliness in regard to the utensils in the dairy, is the cause of trouble with the milk and butter, more frequently than is supposed. It is about the last thing that is suspected, and yet, perhaps, it should be the first. If we were consulted in regard to the premature souring of the milk, or the failure to get butter in a reasonable time, or foaming of the cream in the churn, the first thought would be that the pails, milk pans, or the churn, were not scrupulously and perfectly cleaned. It is a mistake to leave these utensils unwashed, for several hours after they have been used, and it is a still greater mistake to use any wooden pails for milking. The glazed earthen milk pans, are preferable even to tin, and the pressed tin pans are better than the soldered and seamed ones. Tin pails are the best for milking into, as they do not absorb the milk, and can be washed perfectly clean. To wash any dairy utensil that is used for holding sour milk, warm water only should be used at first, to get rid of all the sour milk about it. It is then to be washed in boiling hot water, and to save the hands, we use a mop made of a bunch of cotton candle wick, bound around a good-sized handle. Plenty of water should be used, and a good sink is the most convenient for the purpose. A thorough rinsing in cold, clear water is then given, and the pans are wiped, the towel never being used a second time. It is less trouble to wash a towel so used, than one which is badly soiled. A convenient rack out of doors on an airy porch, is the best for airing the utensils upon.

THE BELL-BIRD OF SOUTH AMERICA.

Engraved after Beckmann for the American Agriculturist.

The Best Time to Cut Clover Hay.

If you are going to seed the hay, it will probably pay you better to let the clover grow until the blossoms are dead, than to cut while they are in full bloom, for the simple reason that you will get more hay per acre. But there can be no question that such hay is not so nutritious, and what is still more important, not as palatable or digestible, as that which is cut earlier. It does not pay to cut too early—certainly not until the clover is in full blossom. But the blossoms do not all appear at the same time. Some may be just forming, while others are dead. A common rule is, to cut when most of the blossoms are just beginning to turn brown. Something, of course, depends on the weather, and on the character of the crop. If the crop is very heavy, and likely to lodge badly, or if it is full of weeds, cut early. If it is a moderate crop, and we have good growing weather, and the clover is green, we should be inclined to wait a few days, especially if the corn and potatoes needed cultivating, or we wished to prepare a piece of land for Hungarian grass. Again, unless there is considerable timothy growing with the clover, we shall have to wait until the clover is nearly out of bloom. Clover matures earlier than timothy, and when the two grow together, we have to compromise, and cut the clover a little late, and the timothy a little early.

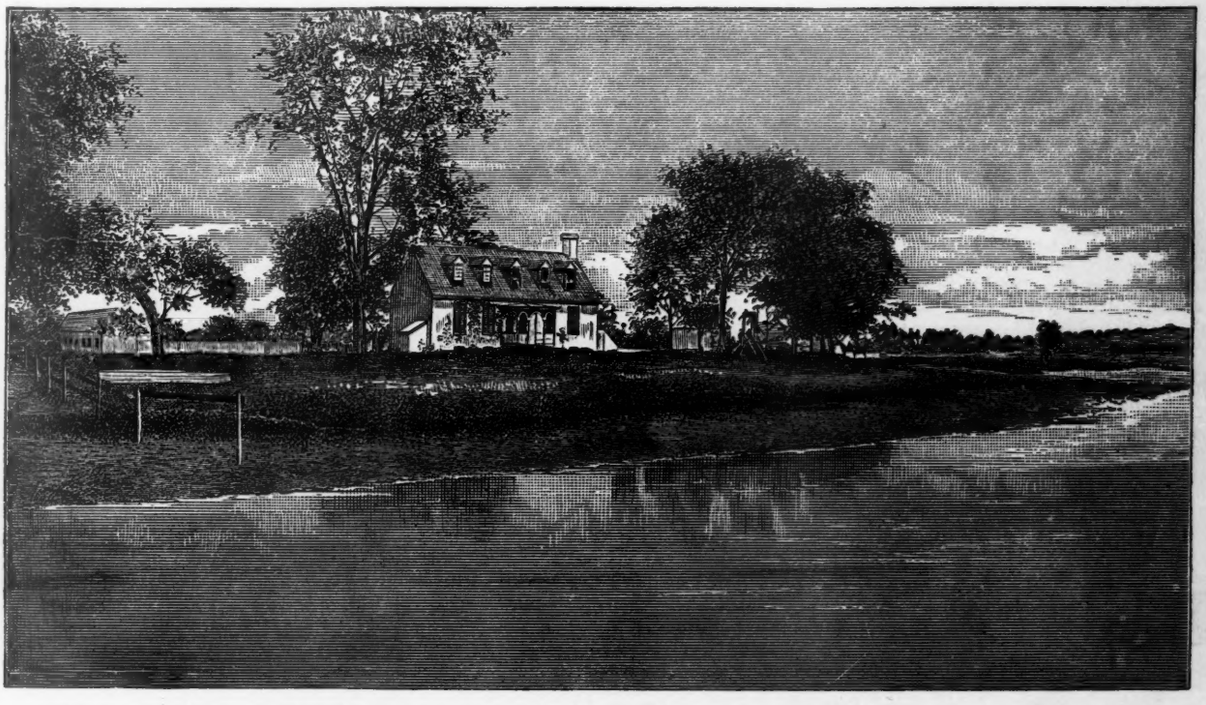
The Bell-Bird of South America.

The traveler in the tropical portions of South America, is often surprised to hear the distinct and measured tolling of a bell, in localities where there is no settlement within many leagues. If he undertakes to follow the sound, and trace it to its source, he will be surprised to find that it proceeds from a bird, which, perched at the top of a lofty tree, utters its peculiar note, which so resembles the sound of a bell, as to make the name Bell-bird, appropriate and descriptive. The sound is said to be distinctly heard at a distance of three miles. The bird utters its note all through the day, even in the hottest portions, when the fierce heat has silenced all other birds. The Bell-bird (*Chasmorhynchus niveus*), is noted for the great difference between the sexes, in plumage. The male is white throughout, while the female is a dusky green color. The male bird has a curious appendage, in the form of a tube about three inches in length, attached to the base of the bill. This tube is jet black, dotted all over with minute, downy feathers. Ordinarily, this tube hangs down on one side, but the bird is able to inflate it with air, when it stands erect. There are three other species belonging to the same genus with the Bell-bird, the males in all being very different from the females. The male in one of the species is snow white, with a large space of naked skin on the throat, and around the eyes. These naked places, during the breeding season, become of a fine green color. The Bell-bird is about twelve inches long, and of the general appearance shown in the engraving. It belongs to the same family (*Ampelidæ*), as our Wax-wing, and the Cedar-bird. In Australia, a country noted for its singular birds, and other strange forms of animal life, there is a Bell-bird, but belonging to a different family from the South American species. The note of the Australian bird resembles that of a sheep bell rather than that of a distant church bell. When its note is produced, as it often is, by hundreds of birds all together, the effect is said to be most singular.

WHEAT FOR DOMESTIC USE.—A subject of thought which presents itself just now in good season for future action, is, if it would not be well for every farmer to make provision for growing at least as much wheat as will furnish bread for his household. The excuse for not doing this is, that it does not pay. But this is a great mistake. The only real cost is the seed. The work costs nothing. One acre, well sown, would yield enough wheat for five or six barrels of flour worth about forty to fifty dollars at present prices. Is it right or profitable for the farmer to pay out in this way so much money for what he can produce himself upon his own farm?

Famous Farms for Freedmen.

Visitors to Old Point Comfort (Fortress Monroe) can spend a few hours very pleasantly, as one of the editors of the *American Agriculturist* recently has done, in inspecting the grounds and buildings of Hampton School, where negroes and Indians are alike educated. A grand and enduring work is being performed here by Gen. Armstrong, a noble Christian philanthropist, assisted by a corps of highly cultivated women, representatives of the most prominent families in the United States. Here we found the daughters of two college presidents, sisters of an eminent New England divine, and also of an eminent, now deceased, New York author. This band of self-sacrificing laborers, are solving the problem as to the successful disposition of the freedmen. They receive the cordial co-operation of the State of Virginia, as well as a yearly appropriation from the Virginia Legislature. Attached to Hampton school is a farm of three hundred and fifty acres, presented by Mrs. Hemenway, of Boston, and enlarged by additional purchase, to over five hundred acres. This farm lies four miles from the Home School Buildings, on Hampton Road, and like the Home Farm, adjacent to the building, is under the care of Mr. Albert Howe.



THE NOTED HEMENWAY FARM (VA.) FOR FREEDMEN AND INDIANS.

From a Picture owned by General Armstrong.

On the home farm there is a daily detail of nine colored, and six Indian boys, except on Mondays, when half of the entire force for farm work is out, giving an average of a day and a half of labor to each one weekly. Eight milkers and drivers are employed all day, and study evenings from seven to nine P. M., for one year. One hundred and ten acres are under cultivation. The apple orchard contains ten acres; peach five acres; potatoes ten acres; cabbages two acres; all being followed by second crops, such as corn fodder for soiling and ensilage, late cabbages, sweet and Irish potatoes; kale and spinach are raised for school use in fall and winter. Of corn ten acres; of oats twenty; of rye five, and of clover twenty acres are cultivated.

A leading feature is the milk dairy; twenty-six grade Ayrshire and Jersey cows, supply from fifty-five to sixty gallons of milk daily, of which about half is used at home, and the rest is sold at Fortress Monroe, and the Hygeia Hotel. For the third year one hundred and forty tons of ensilage have been put up with very good results; it is given to the cattle morning and night, at the rate of a bushel a feed, mixed with four quarts of bran; a feed of clover hay is given in the middle of the day. Last year forty tons of clover hay and of orchard grass were raised, chiefly for twenty-three horses and mules (of which four are boarders, and four are used for driving) on the place. A thoroughbred Morgan and a Percheron horse are kept doing farm work most of the time. The past winter, fifteen tons of pork were slaughtered. There are on hand one hundred and twenty-five young hogs. Essex and Berkshire crossed with Chester are preferred.

The Hemenway Farm, four miles distant from the school, is under the immediate care of Mr. Charles Vanison, a graduate, and contains five hundred acres of good land for stock and grain purposes; it is cultivated by ten students, who work during the day and study evenings, and taken up this year as follows: In wheat there are seventy-five acres; in oats seventy-five acres; in corn one hundred and twenty-five; in clover and grasses, fifty acres; the rest is pasture, excepting seven acres in an orchard and vegetable garden. The stock consists of twenty horses and colts, twenty-five head of cattle, two hundred and twenty-five head of sheep (including lambs), and one hundred breeding fowls, which supply over five hundred head of poultry to the school or market. The building seen in the picture is an old Southern mansion, where, it is said, General Washington once dined; it is used for the manager, and as a school room; there is a frame cottage for students, and a large barn and out-house, needing only a new stable to make it complete. The ten boys do well at their work and studies, going to the Normal School after a year at the Hemenway farm, where they learn valuable practical lessons, and if industrious, save from their wages from sixty dollars to one hundred dollars a year. They are usually paid board, and ten dollars per month. Their savings here, and earnings at school, usually carry them through the Junior and Middle years of the regular course. Indian boys are often sent to this place for a change of work. No treatment is so effective for a wild, wayward Sioux boy, then to send him to the Hemenway farm to work for a few weeks among the steady colored boys. There is no one to "cut up" with, and he subsides almost immediately into the regular steady ways of the white persons about him. These Indian boys, who become farmers, will be efficient aids in settling the Indian question.

Early Lambs for the Butcher.

If you want early lambs, you must attend to the matter now. Twenty-two weeks is the average time. But it is necessary to select the ewes, and commence to give better and more stimulating food, six months before you wish the lambs. As a rule, you can get earlier lambs from ewes having more or less Merino blood in them, than from most the English breeds of mutton sheep. But even with these ewes, it is not always an easy matter to get lambs in January and February. It is safe to select twice as many ewes as you wish to keep, for an early crop of lambs. There is no loss in this. You can dispose of those not served, up to a given date, or keep them for a later crop. In our own experience, we have found no difficulty in lambing, even when we have used rams of the largest breeds, such as the Cotswold. The size of the head, between and about the eyes, has more to do with this matter, than the size of the body. In selecting a ram, avoid large heads. Then if you can get a breed distinguished for early maturity, and rapid fattening qualities, the name is of no consequence. There are many such breeds—South Down, Hampshire Down, Shropshire Down, Oxford Down, Leicester and Cotswold. You can not go amiss. You want to select good, thrifty, healthy, fully matured ewes, and feed them well. And the sooner you commence to give them extra feed, after the first of August, the better. A change of pasture, especially from good to better, and from better to best, is desirable. Give salt occasionally, and fresh water every day. No matter how good the pasture, provide some troughs, and give each sheep a pound each, per day, of oats, or peas, or beans, oil cake, or corn, until all the ewes are served. It may not be necessary to continue this extra feed afterwards, but it is not well to stop all at once. Ease off gradually, but recollect that it is well to keep the ewes in good condition through the fall. If they are good mothers, the fat they accumulate at this season, will find its way into the milk, and produce strong, fat lambs, which will command a high price, and will repay the extra food and care. The price of spring lamb in the markets diminishes greatly in a few weeks, after it is first offered. The high price brought by the first lambs, in part goes to the farmer, and whoever raises early lambs, should have them in among the very earliest.

Midge and Hessian Fly.—The Difference.

The Hessian fly was described in the July number of the *American Agriculturist*, page 301. The fly lays its eggs in the autumn, and again in the spring. The midge, often erroneously called "the weevil," lays its eggs in the flower or ear. The eggs hatch, and the little violet-colored maggots live in the inside of the soft grain, to devour it. A well-filled ear of wheat, near harvest time, hangs down; if you see one with its head erect, by examining the kernels, you will probably find the midge. If, about the time the wheat is shooting into ear, or later, you see the plants "crinkling down," or withering up, on examination you will find maggots at the joints. That is the Hessian fly either in the larval state or as the pupa. Early sowing, and early varieties, are the recognized preventers against serious injury from the midge; but late sowing is desirable when there is danger from the Hessian fly.

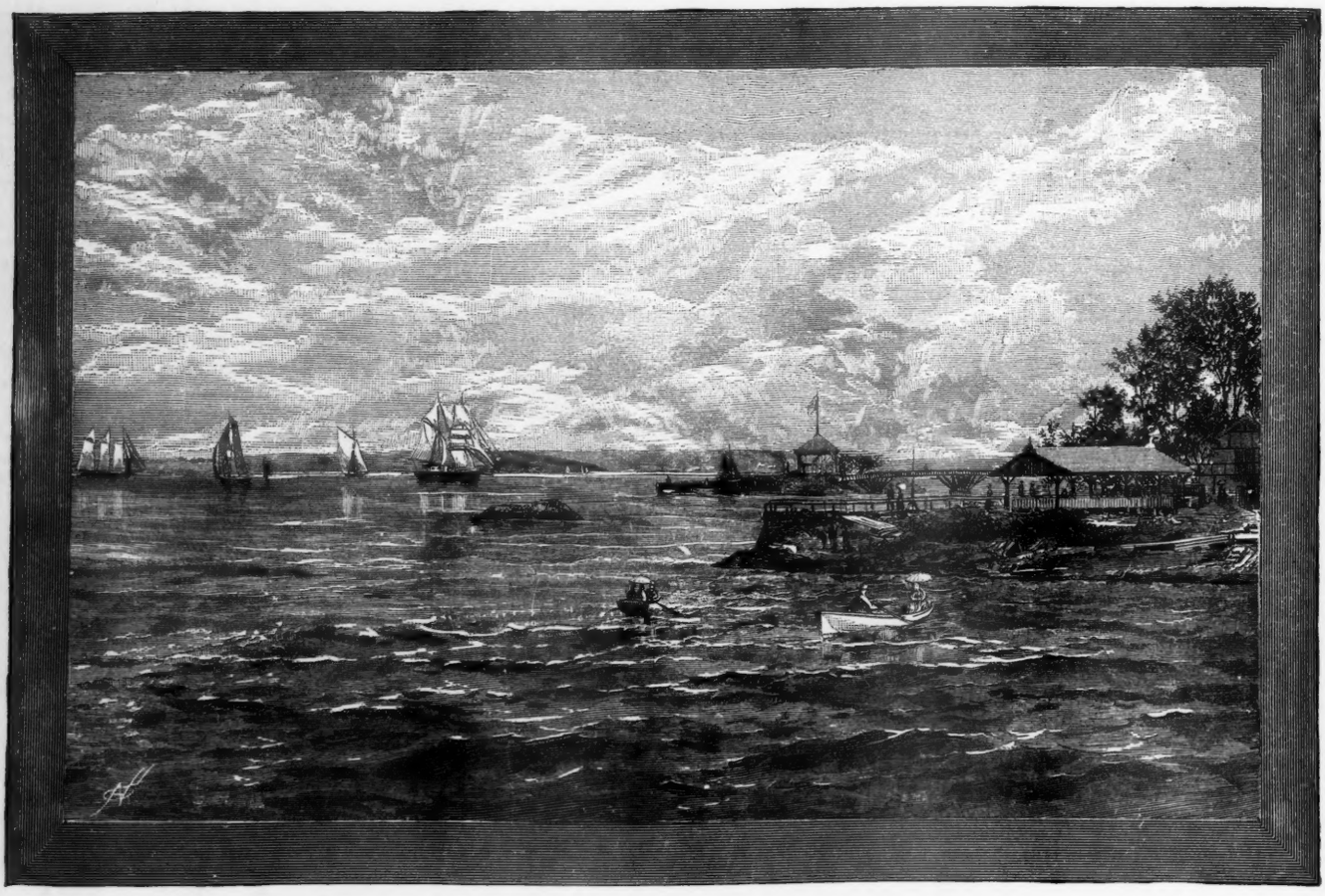
How Much Seed Wheat per Acre.

One of the questions to which there is no definite answer is, how much wheat shall be sown to the acre? Much depends on the condition of the soil, the degree of fertility, the time of sowing, the liability to injury from birds and insects, and on the subsequent character of the season. As a rule, less seed is required when sown with a drill, than broadcast; less when sown early, than when sown late. In western New York, some farmers sow only one bushel per acre; still more, sow five pecks with a drill, and six pecks, if broadcast. Occasionally two bushels per acre are sown, but probably the average is one and a half bushel. The *American Agriculturist* has readers in Great Britain, where three bushels are sown; and again, in sections of our own country, where three pecks are the rule. To the inexperienced, we can give no better advice, than to recommend them to ask their neighbors. There is generally some good reason for a prevailing practice. If you think your neighbors are sowing too much, sow a little less; if you think they are sowing too little, sow a peck more. Do not show your independence by halving or doubling up. If you do, you are pretty certain to make a mistake.

Rye as a Green Manure.

On the portion of our farm, devoted more or less to gardening and seed-growing, as soon as any crop is removed, and we do not know what else to sow or plant, we plow or gang-plow the land, and sow rye at the rate of two bushels per acre. So far as looks are concerned, it is a decided improvement over letting the land lie bare, or covered with weeds. But do we gain anything by it? I do not sow the rye to make the land richer. It is frequently and heavily manured, both with barn-yard manure, and superphosphate, and nitrate of soda. Under such circumstances, we cannot hope to make the land richer by growing crops. All we can do is, to stop the manure from running to waste. On bare land, there may be some loss of nitrogen from evaporation in the form of gas. If so, the growing rye will prevent this loss. But the principal loss is, from the nitrogen leaching out of the soil in the form of nitrate of lime. It seems to be an established fact, that as soon as nitrogen is converted into nitric acid, we must use it or lose it. It is not strictly correct, but to illustrate our meaning, we may regard nitric acid as the bread of plants; barn-yard manure, or sod, or roots, or any vegetable matter in the soil, is the flour of plants. Flour will keep, but when it is made into bread, it must be eaten, or it will spoil. And so it is with any organic matter containing nitrogen. We suffer little or no loss as long as it remains undecomposed. In a peat or muck-bed, it will keep for years or centuries. But expose it to the air, add lime to it, keep it warm and moderately moist, and with the aid of bacteria it is converted into nitric acid, and then, if there are no plants to use it, water may carry it down into the lower layers of soil, or into an underdrain, or porous rock, and finally into rivers, lakes, and oceans, where it furnishes food for plants. These plants, it may be, furnish food for worms, the worms for fish, and the fish for gulls, and these gulls give us Peruvian guano. It is not really lost; but one needs to take a very broad and comprehensive view of the subject to get much consolation from the thought. Nitrogen, in the form of nitrate, costs over twenty cents per pound, and when we have got it, we wish to turn it to good account. By growing rye in the autumn, we save the nitrate. Growing weeds do so also. This is better than to let the water in the winter and early spring carry it away. The trouble is, however, that the nitrogen in the rye or the weeds, is in the inert, insoluble condition, and is unavailable as food for plants, until it has again been converted into nitric acid. And the conclusion of the whole matter is, that if possible, when we have the nitrogen in the form of nitric acid (when our flour is made into bread), we should try to turn it to some profitable use.

For this reason, while I plow under more or less of the rye in the spring, I am always tempted to let it grow, and cut it green for soiling, or let it mature its seed. If we must use the land, stick in the plow, and turn the rye under. This is better than letting the nitrates run to waste. When I was out in the Northwest last fall, and saw many of the spring wheat stubbles covered with a rank growth of wheat, which was being plowed under in preparation for another crop of wheat next spring, that it was fortunate the winters were severe enough to hold this soil frozen solid, until spring, or the rains would wash out the nitrates. That the nitrates were there, was evident from the dark-green leaves of the wheat. If the frozen earth will not retain these for the use of the spring wheat, it would be well to find some plant that would stand the winter, and also bring as much money as a wheat crop. On this point I am in the dark. JOSEPH HARRIS.



TWO HOURS' SAIL FROM NEW YORK.—(*See page* 314.)

Engraved for the American Agriculturist.

Suburban Cottage, Costing $2,500.

ALBERT I. THOMPSON, BROOKLYN, N. Y.

As will be seen by the plans, of which engravings are here given, there are seven rooms above the basement, besides the attic. Each bedroom having ample closet space and light. The upper hall will receive light from a window at the head of the attic stairs. The dining-room has a bay-window and open fire-place; the parlor, and large bedroom above the parlor, have open fire-places also. This house is suitable for almost any site, and will be found especially available for a narrow lot. Within the past few years our conception as to what a country dwelling should be, has entirely altered. Simplicity and refinement of design are in demand, and exterior display, overcrowding with scroll-saw ornamentation, is no longer in favor.

Fig. 1.—SIDE ELEVATION OF COTTAGE.

Dig out the ground under the building the depth required for the cellar and foundation walls. The cellar wall and chimney foundations are to be built of sound, well burnt brick, laid in mortar made of clean, sharp sand and cement. Select the best brick for topping out the chimneys. Provide blue stone sills for cellar windows and coping for chimneys. The house is to be substantially framed, braced, and plumbed. Sills, posts, girts, and plates to be framed together. Braces framed in, and outside door and window studs framed in at top and bottom. All other studs to be nailed in firmly. All partition studs to be set particularly true and plumb. The floor to be bridged with one by three-inch stuff, cut on the bevel, scribed and well nailed to the joists. Spike the rafters well to the plate. Sheath the entire structure with hemlock boards, and good quality of pine clap-boards and shingles, according to the design as shown on the elevation. Flash with best charcoal tin the valleys and chimneys, and cap-flash the ridge. The house is provided with outside door and window casings as shown. Blinds, one and a quarter inch stuff, suitable fastenings. Floors not to exceed five inch width, and be seven-eighths inch thick. There are frames and sash complete for all windows, hung with hemp cords, iron weights, and two inch axle pulleys. Proper fastenings for all windows. The doors are made four panels in hight, and hung with loose-jointed butts, and furnished with Kahala bronze knobs. Outside doors as shown in elevation. Provide white pine shelves for all closets. Make the mantels of clear pine, as per design. The shingles used are of the best pine, eighteen inches, laid five inches to the weather, cut as shown. Base boards, six inches by seven-eighths inch, with moulding. Saddles for doors to be of hard wood. All walls, partitions and ceilings of all rooms, closets, halls, etc., to be lathed with good, dry, sound lath, laid a full quarter of an inch apart, with four nailings to each lath, joints well broken. Plaster with two coats of brown, well haired mortar, then cover with a coat of white hard-finish. Provide stairs to the cellar, with no risers. The main staircase to be built as shown by the floor plans, on three stretches of two inch plank, in a substantial manner. Newels, hand-rail and balusters, to be made of ash; the hand-rail closely bolted at its joints. The house here described, can be built in the vicinity of New York, for about three thousand dollars. Sizes of timbers: sills, four by six inches, halved at corners; posts, four by eight inches; plate, four by six inches; enclosing studs, two by four inches, sixteen inches from centers; partition studs, two by four inches, sixteen inches from centers; rafters, two by six inches, two feet centers; valley rafters, three by six inches; ridge board, one by eight inches; window studs, three by four inches; door studs, two by four inches, doubled; floor beams in first and second story, two by ten inches, sixteen inches centers; floor beams in attic, two by eight inches, sixteen inches centers. Whoever travels about the country cannot fail to have noticed the marked improvement in the dwellings in the rural districts, within the past twenty years. Instead of building unsightly boxes, or erecting city houses in country localities, we now find that the new houses are of tasteful and appropriate design, and suited to their surroundings. The *American Agriculturist* has long endeavored to improve our country dwellings, in the convenience of their interior, as well as in the appearance of the exterior, and has given numerous designs by skilled architects. We are glad to know that these have proved useful to our readers, and that a large number of dwellings, in all parts of the country, have been built after these designs.

Fig. 2.—PLAN OF FIRST FLOOR.

What Is a Right-Handed Man?

A right-handed man is a man who takes hold of a hoe, a rake, a spade or a fork, with the right hand down, and the left hand up, or nearest his body. A man who habitually puts his left hand down, or, for instance, the man who places his right hand on the top of a spade, and grasps the handle or shank with his left hand, is a left-handed man. And so with an axe. A right-handed and a left-handed man can work together in chopping down a tree. If they were both right-handed, or both left-handed, they could not do this, unless one chopped on one side of the tree, and the other on the other side. And so it is in loading earth or manure into a wagon. If the men stand face to face, one should be left-handed, and the other right-handed. In hoeing a row of corn, the right-handed man will walk on the left side of the row, while the left-handed man will walk on the right side of it. When two men together undertake to pitch hay upon a wagon in the field, one should be a left-handed man, and the other a right-handed man, and stand face to face—otherwise they will make awkward work of it. There are men who say they can use one hand as naturally as the other, but it is not common. As a rule, we think there are more left-handed men (in this sense), than right-handed men. In pitching hay or grain upon a wagon, the right-handed man will prefer to have the wagon drive so that the row of cocks or shocks shall stand on the left side of the wagon. The difference between a handy man on a farm, and an awkward one, is often due to a want of ready perception of the difference between the right hand and the left, as here described.

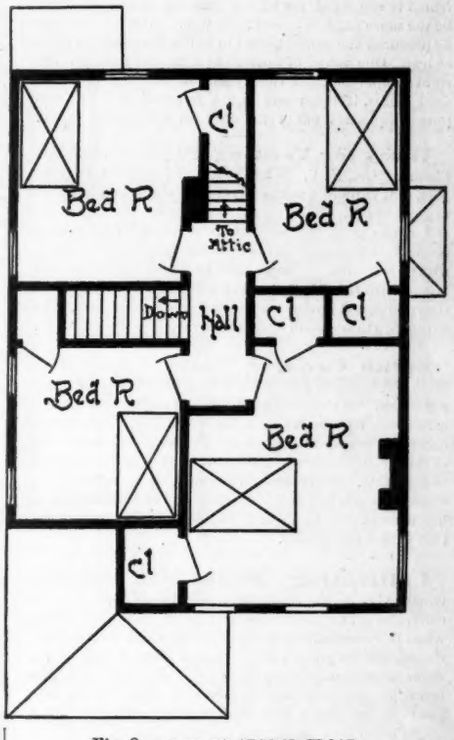


Fig. 3.—PLAN OF SECOND FLOOR.

OUR BASKET.

In Asking for Information, every particular should be given, so that a full knowledge of the matter may be had. A good way is to consider the situation to be reversed, and instead of asking for information, to assume that some one is asking the writer of the inquiry for it, and then one can easily perceive what particulars are required for a satisfactory answer.

Packing Butter.—There are some things that are impossible, and one of these is to make bad butter good, by any process whatever. Those farmers who are packing butter, must therefore be exceedingly careful to avoid every fault that would injure its quality. They should be aware that every fault or bad quality, will only grow worse and worse by lapse of time in the package.

Period of Gestation in Sheep.—Joseph D'Arcy, Brazoria Co., Texas, asks us: "What is the full term of gestation of the sheep? I have had some argument with my neighbors about it, but we cannot decide." With sheep, as with cows, the length of time varies considerably. Most shepherds, if asked the question, would answer, "twenty-two weeks,"—but a week earlier, or a week later, is not by any means uncommon.

Summer Making of Compost.—H. Baker, Sussex Co., N. J. Compost could be made with every advantage during the summer. There are many opportunities for gathering materials at this season, and by mixing lime with them, the decomposition will go on so rapidly, that the manure will be ready for use in the fall.

Tobacco for Sheep Dip.—S. T. Engel, Wake Co., N. C. The tobacco used for making the dip which is employed for killing ticks on lambs, need not be the more expensive leaf; the waste stems which can be procured at a cent a pound in bales, is equally as good as leaf. One pound of tobacco to a gallon of water is the right proportion, and twenty gallons will dip one hundred lambs, if the waste liquid is saved and the surplus is squeezed out of the wool on a draining board.

Whey for Feeding Pigs.—H. Mather, Chemung Co., N. Y. Whey is a very imperfect food for pigs, and without a perfect food no animal can be kept in good health. Whey contains nearly all the sugar and salt of the milk, but is deficient in fat and nitrogenous elements, which exist in the caseine, or the cheese-making part of the milk. If some corn-meal and wheat-bran are mixed with the whey, the food will supply every need of the animal, and produce sound and wholesome pork. The extra growth and solid flesh will pay well for this addition.

Scrub Cows.—J. Hoskins, Oakland Co., Mich. A scrub cow is one that is poorly kept and badly neglected. Of course the offspring of such a cow, or of a scrub bull, will be a scrub, but even then, better treatment will improve the animal. The scrubbiness of cows of this kind, belongs in great part to the owners, and not to the cattle. Every wise farmer will try to improve his stock, and this he can do by selecting the best animals to breed from, and by feeding them liberally. It is food that makes the animal.

Cultivating Beans.—H. Sedgwick, Greene Co., N. Y. The reason why beans should not be cultivated while the leaves are wet is, that if the leaves, when in this condition, are covered with soil, they become rusted, and the growth of the plant is affected injuriously. Some large bean growers fit a shield made of a light, thin board, to the horse-hoe or cultivator, and this is kept close to the plants and catches any loose soil which might otherwise be thrown upon the leaves. Frequent stirring of the soil is of great advantage to this crop.

The Best Bee-Hive.—Subscriber, Gettysburg, Pa. There are several hundred kinds of bee-hives, and each one is thought to be the best by the one who uses it. Mr. Root, and the late Mr. Quinby, recommend the Langstroth hive, and it is doubtful if there is any better hive than this, which was the first frame hive made. The Simplicity hive is made in Ohio, but is not so simple as the Langstroth, and as simplicity is a great point, the Langstroth hive is preferable, as we think. Quinby's New Bee-keeping, gives full measurements and descriptions for making unpatented movable comb hives.

Sowing Ruta-Bagas.—H. Johns, Livingston Co., N. Y. Ruta-bagas may be sown up to the middle of July. After that it would be well to wait for a month and sow Yellow Aberdeen, or White Cow Horn Turnips. One pound of seed per acre is sufficient. The ground should be made quite mellow and fine, and the sowing should be crossed to get it even, that is, one half of the seed is sown one way, and the remainder across it. A pinch of seed taken between the thumb and two fingers, is enough for each cast. A brush-harrow is an excellent implement to use in covering the seed.

Vices in Cows.—The owner of a cow who is annoyed by the frequent vices contracted by some of his animals, rarely thinks of accusing himself of their authorship. But it is nevertheless true, that the owner may be the actual cause of all the trouble with his cattle through mistakes in the management. These vices are generally incurable, and seem really "bred in the bone," as the saying is, and can never be got out of the flesh. Others are contracted when the animals are very young, and so become fixed, and hard to cure afterwards. These faults are to be avoided in the training of the calves, and everything that would encourage them hereafter, must be especially guarded against by the owner.

More Grass and Fodder Crops.—H. Smith, Fauquier Co., Va. To have more grass and fodder, a regular rotation of crops should be followed. Wheat should follow clover; this makes an excellent green fodder crop, and if cut instead of being pastured, five acres would support twelve or fifteen cows through the summer, with a run in a poor pasture. After a year or two of pasturing a poor field, it may be broken up and seeded to orchard grass, which is the best grass we have for permanence, for yield and for earliness The best fodder crop is corn, and if it is grown in rows and well cultivated, it has none of the well deserved objections which are often made against broad cast sown corn.

Training of a Young Bull.—E. S. Spencer, Center Co., Pa. A bull may be trained so as to be quite safe, but under any circumstances should have a ring in its nose. This is a means of subjection which is never forgotten by the animal. The first attempt to use its horns, either in play or anger, should be sharply punished with a rawhide, which will be more feared by the animal than a club. At first, and ever afterward, whenever a bull is loose in a yard or field, the attendant should carry the rawhide with him. A great safeguard is to make the bull work; fit him with a harness and a light wagon, and make him do whatever work he can with a wagon or cart, and also in a tread power. This will make him docile, and improve his breeding value.

Expenditure for Food.—H. Bryson, Fond du Lac Co., Wis. The estimated expenditure for food of a person whose income is five hundred dollars yearly, or less, is two hundred and fifty dollars in the year, or seventy-five cents a day for an average family. Of this thirty cents is spent for meat, fifteen cents for dairy products, nine cents for bread, seven and a half cents for vegetables, seven and a half cents for sugar, and the remainder for tea, coffee, rice, salt, etc. Thus sixty-nine cents of the whole expenditure goes to the farmer, and of this, thirty cents is for meat. This shows the importance of the live stock interests, and how much attention should be given to this by farmers that they may increase their share of it.

Weaning a Calf.—S. P. Frank, Iowa. A calf should be weaned gradually. In the management of all kinds of live stock, sudden changes of feeding are to be avoided, especially with young animals. One can do anything with a calf, by gradual change of food. When a calf has been fed with milk and a change is to be made, water is gradually added, until only water is given, and solid food is substituted for the milk. The change may be begun when the calf is three months old, and may occupy a whole month. At this season there is nothing better than grass, but a little grain food will be well repaid. Our method is, to begin with about a handful of fine corn meal and fine bran mixed in equal portions, and increase the grain gradually until half a pint a day is given.

Shoeing Horses.—S. S. Stanford, Carrol Co., Md. On light soils that are free from stones, horses may go unshod without injury. It is probably too sudden an innovation to stop shoeing horses under all circumstances at present, but no doubt a colt which has run without shoes for two years, might still go on without them and not suffer. A light shoe without calks, to protect the crust of the hoof from breaking, and put on without ever cutting the frog, leaving that to wear naturally, would answer every desirable purpose where shoes are necessary. There are light steel shoes, made with projecting blunt spurs, that give a secure foothold, and are better for the horse than the common, roughly made, heavy iron ones, which are often ignorantly set.

Late-Planted Fodder Crops.—M. W. Smith, St. Louis Co., Mo. The early kinds of sweet or field corn, are the best for fodder crops at this late season. Narragansett Sweet Corn will be ready for cutting, and have green ears upon it in sixty days, and will yield at least twelve tons per acre, if planted in rows thirty inches apart, with four seeds dropped every foot. This method gives a plentiful supply of air and light for the necessary maturing of the corn, so that the fodder is nutritious and wholesome. Early Canada Corn will mature sufficiently for use as fodder in sixty-five days, and will yield more than the Early Sweet, but it is not so desirable for feeding. Millet may be sown any time in July, and up to the middle of August.

Curing Tobacco.—William Bond, Charlotte Co., Va. Tobacco is cured in three ways: by air-drying, by open fire heat from charcoal or wood fires in the barn, and by flues which convey heat from ovens and heaters built outside of the barn. The last method is the best, as it gives one better control over the temperature. No regular rule can be given; the heat is to be regulated according to circumstances, and must change with the weather. The main thing is, to dry the tobacco gradually to secure a good color, and to prevent molding. When the tobacco is dry, it should be kept so by gentle firing in wet or damp weather, and it should not be touched to bulk it, until it has become soft and pliable. The most particular part of the curing is the fermentation which occurs when the tobacco is bulked, as this process has a very important result on the flavor of the leaf.

The Sheep Gad-Fly.—W. A. Harison, Washington Co., Pa. There are several methods of evading the attacks of this troublesome insect, which may be expected to make its appearance towards the end of July or early in August. One method is, to run a few furrows across the pasture, to provide a bed of soft earth in which the sheep can dip their noses, and cover them with the soil. This adhering soil prevents the fly from attaching its eggs to the skin. Another and a better way is, to provide some V-shaped troughs in the field, in which a little salt can be scattered, and to paint the sides with pine tar at short intervals, so as to keep it fresh. This tar adheres to the sheep's nose, and kills the eggs which the Gad-fly deposits upon it. Another plan is, to reserve a good pasture for the sheep during the fly season, by which they can protect themselves by keeping their noses in the grass. Sheep with such pastures are rarely troubled with grubs in the head. It is those animals feeding in bare stubbles and poor fields which suffer.

Ravages of Dogs.—T. Williams, Champaign Co., Ill. There are no accurate statistics of the amount of damage inflicted by dogs upon the sheep interest, but it probably amounts to several million dollars yearly. This, however, is a small affair, as compared with the indirect damages in preventing the keeping of sheep in the more thickly populated States, where, in places, there are more foxes than sheep, and a sheep could not be seen in a whole day's travel. The losses among cattle by disease, are not so costly as the damages inflicted by dogs upon sheep, and yet the United States Government is considerably agitated about the safety of cattle, and has appropriated two hundred and fifty thousand dollars for a Bureau of Animal Industry, on its account. This difference between the cattle and sheep interests, is wholly due to the active measures taken by cattle-men, and to the neglect of the sheep owners.

Cost of Growing Tobacco.—T. Baker, Juniata Co., Pa. A prominent and successful tobacco grower in Pennsylvania, gives the following statement of the cost and returns of a field of nine and a half acres, viz.: two hundred and fifteen and three-quarter days' labor of men from preparing the seed-bed, up to the hanging in the barn, two hundred and fifteen dollars and seventy-five cents; team work thirty-eight and a half days, with feed for forty-two and a half days, one hundred and forty-five dollars and five cents; curing, stripping and marketing, seventy-five dollars and thirty-six cents. Total, four hundred and thirty-six dollars and sixteen cents. Product, ten thousand and twenty-three pounds at twelve and three-quarter cents, and fourteen hundred and fifty pounds at two cents, one hundred and thirty-seven dollars and sixty-nine cents. Net receipts, eight hundred and seventy-one dollars and fifty-three cents, or one hundred and thirty-seven dollars and sixty-six cents per acre of gross receipt; cost per acre, forty-five dollars and ninety cents, and net receipts, ninety-one dollars and seventy-six cts. per acre. This will vary in other localities.

Are You Insured?—If the barns are not insured, effect insurance in a good company without delay. This month, accidents from lightning are very frequent. The vapor ascending from new hay acts as a conductor of lightning and attracts it, often with sad results.

Aerating the Soil by Drains.—J. W. J.—It would not pay to go to the expense of having outlet-pipes coming to the surface for under-drains. Air will penetrate wherever water will go, and the circulation of water in the soil, necessarily causes an equal circulation of air, which occupies the space which the water leaves, as it sinks into the soil, or evaporates from it.

Pipes for Spring Water.—C. B., Ames Co., Iowa. The best wooden pipe for conveying water is made of hemlock, or cucumber wood, as the water will acquire no disagreeable taste from these pipes. The best metallic pipe is an iron one, oxidized by what is known as the Bower-Barff process, or another process not patented, in which melted saltpetre is used. These pipes are cheap, and as they do not rust, are durable.

A Woods Pasture.—S. W. P., Robertson Co., Tenn. It is not very difficult to make a very fair pasture in a grove of trees, but the trees must not be too thick, not less than fifty or one hundred feet apart. The grasses suitable for such a place, are Orchard Grass, Kentucky Blue Grass, Woods Grass (*Poa flexuosa*), and other varieties of Poa or Blue Grass, which grow well under shade. A good selection of seed could be procured on the bald mountain tops in the Tennessee mountains.

English Hares.—P. R., Queens Co., L. I. It would not be difficult to procure the large English hares alive, for the purpose of stocking a preserve. These hares are large, weighing eight to eleven pounds, and are exceedingly destructive to crops, especially wheat. English farmers estimate that seven of these hares, will eat as much as a sheep; consequently, they are very unpopular, and it might be an ill service for any one to import and turn these animals loose in this country.

Curing Fodder Corn.—J. W., Hartford Co., Conn. Fodder corn, especially the sweet varieties, always requires careful curing to prevent the stalks and half-grown ears from mildewing. The stalks do best when set up in small shocks to partly dry, and then bound in small bundles, and stacked two tiers high in the field or a yard near home. The tops should be bound tightly, and well arranged to shed rain. They may stay out-of-doors safely throughout the winter in this condition.

The Catalpa Tree.—J. W. Jun, Middlebush, N. Y. There are two species of Catalpa, *Catalpa syringæfolia*, the common species, and *C. speciosa*, the Western Catalpa. The former is a southern species, being found in Georgia and Florida, while the other occurs in Illinois and Indiana. The latter is the most hardy. The wood of both is very durable, especially the latter, which is exceedingly handsome, polishes well, and is desirable for interior finishing and for cabinet work.

Barn Pumps.—C. Rose, Somerset Co., N. J.—It is quite easy to draw water from a pump at a barn, through a pipe connected with a well, or spring, one hundred and fifty feet distant, and fifteen feet below it. Water can be drawn up twenty-five feet perpendicularly, and a distance of two hundred and fifty feet horizontally, by means of a well joined pipe, a good pump, and a check-valve at the bottom. A well is better than a cistern, but a cistern is always useful, if it is kept in good condition.

Marks on Berkshire Pigs.—C. C., Millard Co., Utah.—It is a mistake to suppose, that pure bred animals, of any kind, always produce young precisely like themselves. On the contrary, it is an important part of a breeder's business to weed out imperfect animals, and select only those fit for use, to keep up the standard. Pure bred Berkshire sows, bred to pure boars, occasionally have spotted pigs, and we have seen wholly white, or sandy pigs, dropped occasionally. Only well marked and typical pigs should be used for breeding.

Why the Cow Went Dry.—J. E. C. Cows go dry most frequently in part of the udder or teats from an attack of garget. The udder becomes hard and swollen, and the milk is no longer secreted, or becomes thick and stringy, and can not be drawn off in the usual manner. If a cow in this condition is neglected, she will often permanently lose the use of the affected parts of the udder. To avoid this, the cow should be given a pound of Epsom salts, and the udder ought to be gently, but frequently and well rubbed, with camphorated soap liniment, mixed with an equal quantity of ether.

Fall Plowing for Spring Crops.—There is no rule that can be laid down for farm operations under all circumstances. It depends very much upon the kind of soil, whether fall plowing for spring crops would be beneficial. A clay soil that will fall to fine fragments under the influence of frost, will be benefited by it. But a soil that will run to paste, and become hard and packed by the freezing and thawing, will be injured. Judgment derived from experience is to be exercised in such cases.

Gravel Roofs.—H. D. M., Minnesota. A gravel roof is made as follows. The roof is made to slope a few inches so as to carry off the water, but not enough to cause the tar to run. It is boarded over close, and the boards are covered with tarred felt, to prevent the roof from cracking. This is then covered with hot tar and sand, and fine gravel, made hot, is scattered over the tar, so as to absorb it and keep it from flowing off when heated by the sun. Pea gravel, washed, is often used, but coarse, clean sand makes a good roof.

Corn, Potatoes and Frost.—"W. H.," Rutland Co., Vt., tells us how he saved his potatoes and corn from a very severe frost, which came three nights in succession, and which killed the young plants of his neighbors, right and left. Indications pointing toward a heavy frost, he covered every hill about an inch deep with earth, using hoes. When the frost was over, he uncovered them with potato hooks. The frost had killed all the small weeds in the hills, but the potatoes and corn were saved. Loose earth is an excellent mulch.

Drainage to Moisten Land.—J. W., Somerset Co., N. J. Much is claimed for drainage that can not be realized from it. Its too enthusiastic advocates claim that it will not only dry wet land, but that it will moisten dry soil. The latter is too broad a claim, and is not to be depended upon. It will certainly not pay to drain land for this purpose only. Where there is a strong hard-pan subsoil, breaking this up by deep subsoiling, will tend to prevent the thin surface soil from drying out. The red shale soils which stretch from New Jersey, southward, several hundred miles, are much improved by thorough and frequent cultivation.

Side-hill Plows.—A. C. J., Forsyth, Ga.—Side-hill plows are exceedingly useful, not only upon hilly farms, but on level land. For hilly land, they are indispensable for proper cultivation, and to prevent gullying of the soil by washing. A good way to use them is, to plow the land in a slightly diagonal direction up and down the hill, giving just enough slope, so that each furrow will carry its own water down the hill slowly and easily, and not overflow into the lower furrows. In plowing level land, the swivel plows avoid all dead furrows, excepting one at each side of the field, where the work is finished, after beginning in the middle, which is the best way. The plows are made in several sizes.

Bogus Butter Triumphs.—One of the courts has recently decided, that the present New York law against the manufacture and sale of oleomargarine, butterine, and other bogus butters that end in "ine," is unconstitutional! Probably the court is right, and the law was carelessly drawn up. The friends of real butter need not be discouraged. They have only to try again, and frame a law to prevent the sale of promiscuous grease for butter made from cream, that shall be constitutional. If this can not be done; if the Constitution is so very peculiar, that a law to prevent selling grease for butter can not be passed—then amend the Constitution. Honest butter—butter as is butter—is bound to triumph in the end. Its friends will "fight it out on this line, if it takes"—many years. The recent decision favors bogus butter, for the present, but the right, the cause of real butter, the genuine against the bogus, will succeed in the end.

Preserving Eggs in Lime Water.—Mrs. P. Henter, ——— Mass. Eggs are preserved by the lime water process as follows. A peck of fresh lime is slaked in water, and when cool, is diluted by adding water to make half a barrelful. When this is well settled, and perfectly clear, a proper barrel or other vessel is procured, which must be sweet and clean, and the eggs carefully laid in it, so that none be broken or cracked. The clear lime water is then poured over the eggs. A piece of muslin, cut larger than the top of the vessel, is then laid over the eggs, the soft lime from the bottom of the barrel in which it was slaked, is poured upon the cloth to the thickness of half an inch, and this is kept always covered with water. If set in a cool place, with a wooden or other cover over the vessel, the eggs will keep good several months.

Value of Tannery Refuse.—J. Hall, Monroe Co., Pa. The refuse from a tannery, consists of fleshings and clippings of the hides, the lime and hair from the unhairing vats, and the ashes of the tan bark which is burned under the boilers. The value of these varies very much, the fleshings and ashes being worth the most, and probably five dollars per ton would be a fair price to pay for them. The leaching of the bark takes about half the potash and phosphoric acid from it, and so reduces the value of the ashes. The lime and hair are worth about one dollar a two-horse load. A good way to use these wastes, is to compost them all together with an equal quantity of good soil, and after a month or two, with occasional turnings, to spread them on grass land, or on newly sown wheat or rye, in the fall or early winter.

Burning Lime.—J. S. W., Mendon, Pa., writes: "I wish to tell you how we burn lime here. First, we make a layer of large wood, with flues of fine wood. Then a layer of lime-stone, about one-half foot thick. Then a layer of slack, (fine coal costing from sixty cents to one dollar per hundred bushels). Then a thicker layer of stone, and so continuing until the desired hight is reached, or until it comes to a point. We use about one-tenth slack and nine-tenths stone, covering the outside with slack. Kilns made in this way, burn from five to eight or ten days, and make a very good quality of lime, either for building or for land. Almost every farmer, in this vicinity, uses it. They use it in various quantities and ways. One hundred bushels per acre, scattered evenly as a top-dressing, for wheat or corn, gives good results. Some use much more, and some much less.

Feeding Stock in the Winter in a Cold Country.—J. M. S., Mich. A tight stable, with a floor overhead not more than seven feet high, and having hay or straw over it, will keep cattle warm enough even in zero weather. Roots fed out from a cellar, where the temperature is near freezing, are too cold for the best results in a dairy; the unhealthful effects of the cold upon the cows' stomachs may be obviated by mixing the cut roots with a little corn meal and some cut hay which has been moistened with hot water. The little fuel that may be needed for warming the feed in this way, will be paid for in the saving made in the feed, or in milk and cream. Corn meal and pea meal are excellent for winter feeding of cows; four quarts daily would be a moderate supply. Parsnips are the best roots for cows; mangels are the next best for quality, but the best in case of production. Turnips or ruta-bagas should not be used for milking cows as they flavor the milk.

Destruction of Moles.—J. H. S., Morris Plains, N. Y., writes: Having suffered much loss from depredation of the moles in sweet corn, roots, cabbages, etc., I poisoned them with Strychnia as follows: I soaked corn in a strong solution of Strychnia, then removed the earth very carefully over their fresh runs, making a small hole, dropped in about five grains in each hole, and covered the opening with a light stone, or anything to keep out the light, leaving the run as dark as before. I set a small stick near each place, and in a few days I examined, and found part of the corn gone; moles left. For roots, such as carrots, beets, etc., I mixed various small seeds, carrot, beet, turnip, melon, etc., soaked and put in the holes. The moles left. When I have had corn prepared, I have gone over pasture fields, and put the corn in several places. Result: Not one-quarter the moles that we had a few years ago. I have one neighbor who has caught moles in a trap. Others do not try to get rid of them. If they all would use the Strychnia, I believe we might greatly lessen their number.

Alfalfa in South America and Elsewhere.—Mr. Orris A. Browne, Second Officer of the Southern Privateer Shenandoah, who on the close of the late unpleasantness, "concluded" to spend a few years in South America, writes us as follows from his now large estate in Accomack County, Virginia. "The writer has grown Alfalfa, and has considerable experience with it, both in River Plate Country of South America, and in this county. As you say, 'Alfalfa will not make a good substitute for clover—it will not succeed if sown with grain—it requires very careful preparation of the soil, rich land, and peculiar sowing.' Thus far your advice is in accordance with my experience. The proper way to sow it, is broadcast, twenty pounds to the acre, in the fall of the year. It will give more feed from the amount of land, than anything I know of. It is better green than clover, and it will make far better hay. It is best suited for a permanent grass to cut, for those who have a small area, and want a great amount of feed. It is a vigorous grower and a hearty feeder, and should be manured after each cutting is removed. In Buenos Ayres, from seven to eleven cuttings could be made. In this county I have had five, and in fairly good seasons, four good cuttings. It should be cut even with the ground. Alfalfa is not suited to a rotation in farming, as its roots extend from five to eight feet into the ground, and on this account, it has remarkable vitality in a dry season."

Helps in Making Wire Fences.

It is very rare to see a really neat wire fence, unless it be of barbed wire. A fence of smooth wire seems to offer a great many forms of amusement to man, as well as to animals, who soon bring it into a miserable condition. Cows will rub their horns upon it, and rub their necks, and try conclusions with it, to see how easily they can twist the wire and stretch it with their horns, and hunters and tramps will sit upon it and swing themselves, and finally succeed in sagging it down. For this

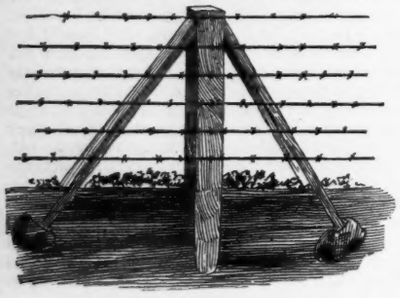


Fig. 1.—A WIRE FENCE WELL BRACED.

reason we favor a sharp barbed wire, which might well adopt the motto connected with the Scotch thistle, *Nemo me impune lacessit*, "no one troubles me with impunity." But even a barbed wire fence must be well made and firmly set, lest the changes of the weather loosen it. The way in which we have succeeded best in getting a good wire fence, is to brace the posts, as shown in the engraving, on both sides, in order to resist the tension in either direction. Every eighth post was thus braced, and it made a mark for measuring the length of the fence, for each post set one rod apart, made eight rods, or a fortieth of a mile for each braced post. The braces are notched into the top of the posts, just below the top wire, and a spike is driven through both the brace and the post. The braces abut upon large stones, which gives them great

Fig. 2.—GRIP FOR FENCE WIRE.

firmness. To strain the wires, we use a grip like that given in figure 2. It is shown about half size, and can be made by any blacksmith. The toothed cam holds the wire so that it will not slip. We have found a block and tackle the best to draw the wires with. The rolls of wire are paid out of a wagon body, and when the wire is to be drawn up, the grip is put on at any point, the tackle is attached, and one horse draws it up as tight as it needs to be. One man may draw it very tight, but as a rule this is a horse's work, rather than that of a man. A man's brains were given him to spare his muscles.

Small versus Large Farms.

D. D. T. MOORE.—SECOND PAPER.

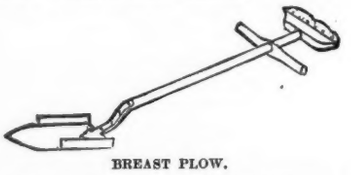
But we have digressed from our original purpose, which was to discuss the superiority and desirability of small over large farms. As a rule, small farms are the best for many reasons. In discussing this subject, a recent writer—no less an authority than the Statistician of the Agricultural Bureau—pertinently and suggestively remarks: "Do farmers realize the full meaning of the small farm plan? It means schools, churches, society, culture in all directions. Monster farms mean a desert, isolation, barbarism. Small farms encourage good tillage, make large crops, high prices of land and property for all. Instead of four million farms, in less than a generation eight will be required. Available public lands are becoming scarce. When farms are no longer given away, and land-owners must divide, they will sell only at a strong advance on nominal rates. It is a good time for a poor man to secure a foothold upon a convenient bit of soil, become a land speculator in a commendable way, and make a home for himself and children before the competition for land shall crowd him to the wall of homelessness." There is much sense and force in this comparison of small and large farms, for the former naturally bring the intelligence, morality, and refinements of civilization, while the latter have a tendency to produce illiteracy, roughness, and the other disadvantages of isolation. And the suggestion about poor men securing land of their own, is most timely and sensible, for the period is fast approaching when that will be a most difficult and expensive matter.

There are, however, other cogent reasons why small farms should be preferred by the great majority of cultivators. As we have said before in discussing this subject, the great drawback in many sections of the country, and especially in the West and South, is that the farms are too large. The result in many instances is poor culture, bad crops, and little or no profit. For a man who lacks means to invest, and is deficient in the executive ability necessary to plan and manage, cannot farm hundreds or thousands of acres successfully. This has been time and again demonstrated in every part of the country where it has been attempted. Our own notion is that small farms, well cultivated, are almost invariably the most profitable; and hence, we firmly believe (what has so often been asserted), that if many a farmer would sell half or two-thirds of the acres he now occupies, and poorly tills and manages, and devote his entire time and energies to the care and cultivation of the remainder, he would derive far more profit from his labor and investment, with much less vexation of spirit. The fact is, as somebody truly asserts, we have too many farmers who are "land poor"—who have so much land they cannot make a living. Paradoxical as this may appear, it applies truthfully to many a naturally fertile and productive locality. When such farmers have learned that it is not economy to own more land than they can till in the most profitable manner, so that it will pay for the money expended in keeping it free from taxes, weeds, and other encumbrances, they will have solved the problem of ease in practical rural life. The happiest and thriftiest farmers we have ever known lived on farms of only ten to one hundred acres, every foot of which was made to count. On the other hand, the farmer who has so many broad acres that he cannot walk over them daily—where rods of fence corners are never cultivated or otherwise utilized—lives a life of anxiety and worry. His taxes are heavy and his crops light. He cannot give reasonably thorough cultivation to so much land. Now, if the farmer who owns one hundred acres of land will sell half of it and expend the money received therefor in cultivating the other fifty—getting improved stock, implements, fertilizers, etc.,—he can make each acre produce as much as two are now doing. And in many localities — notably near markets, where choice fruits and vegetables are in demand—many a man with fifty or even thirty acres, might sell half his farm and cultivate the remainder to like advantage.

In the Middle and New England States—as well as in localities elsewhere which are near or easily accessible to good markets—there are plenty of small farms of from ten to thirty acres, which are very profitable, while there are thousands of large ones containing hundreds of acres each, equally fertile, yet so badly managed, that they yield their owners little or no dividends. It is the latter class of cultivators, by the way, who croakingly aver that "farming don't pay," of which fact they are living witnesses. Any non-progressive readers of the *Agriculturist* (and if there are any such they must be borrowers), who may perchance be attempting to bore augur holes with gimlets—by attempting to cultivate large farms successfully without either the adequate practical knowledge, means, or executive ability—are advised to call a halt, and consider whether a change would not prove advantageous. Instead of working like slaves and living in a miserly manner, in order to "run a big farm," or purchase "all the land that joins them," it would be wise for hosts of farmers to sell some of their broad acres, concentrate their efforts upon limited areas, and look more to the comfort and happiness of their households, and the proper education of their children. Even if large farms were the most profitable—which we deny—small ones are to be preferred for many and cogent reasons, not the least of which are the comfort, peace, and general welfare of the owners and their families.

A Breast Plow.

A breast plow is serviceable for many purposes. It can be used for cutting sods, for cleaning the surface of swamps, and removing the moss and



BREAST PLOW.

tangled weeds which cover such wet ground. It is excellent for cutting up thistles when in thick patches, and for plowing up plantains or other stiff weeds which are thick on the ground. It may also be used for clearing fence-rows of the mass of weeds that often cumbers such places. These weeds when thus loosened from the soil, will make most excellent material for compost heaps. This tool is made like a round pointed shovel, with the sides turned up two inches, and is fitted to a stout handle, which has a cross handle for the hands, and a padded saddle to push upon with the breast. The edge is sharp. This tool will be found useful in the work of cleaning up and killing weeds and brambles.

Roofs for Large Barns.

We here give a plan for making a wide barn, so framed as to offer no obstacle to the passage of a hay carrier, and which, having low walls, only twelve feet high, and a flat roof, will not be shaken by heavy winds. Indeed, by adding lean-to wings, thus bringing the roof down near to the ground, say, for instance, four or five feet, and using these lean-tos

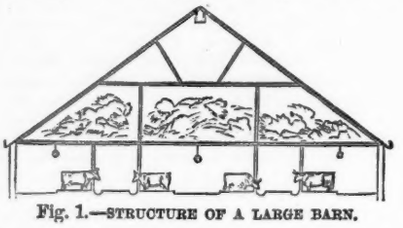


Fig. 1.—STRUCTURE OF A LARGE BARN.

for pens for sheep and pigs, or for the storage of fodder, a barn of this kind would resist the severest storm. The form of the roof and its support, is the one great point for study. The roof must not only be held up, but it must be sustained against the downward pressure of heavy winds. The roof shown at figure 1 is exceedingly strong, and has a very large space for storage, and it will hold at least one head of cattle for each running foot. A

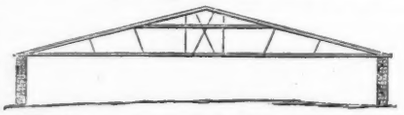


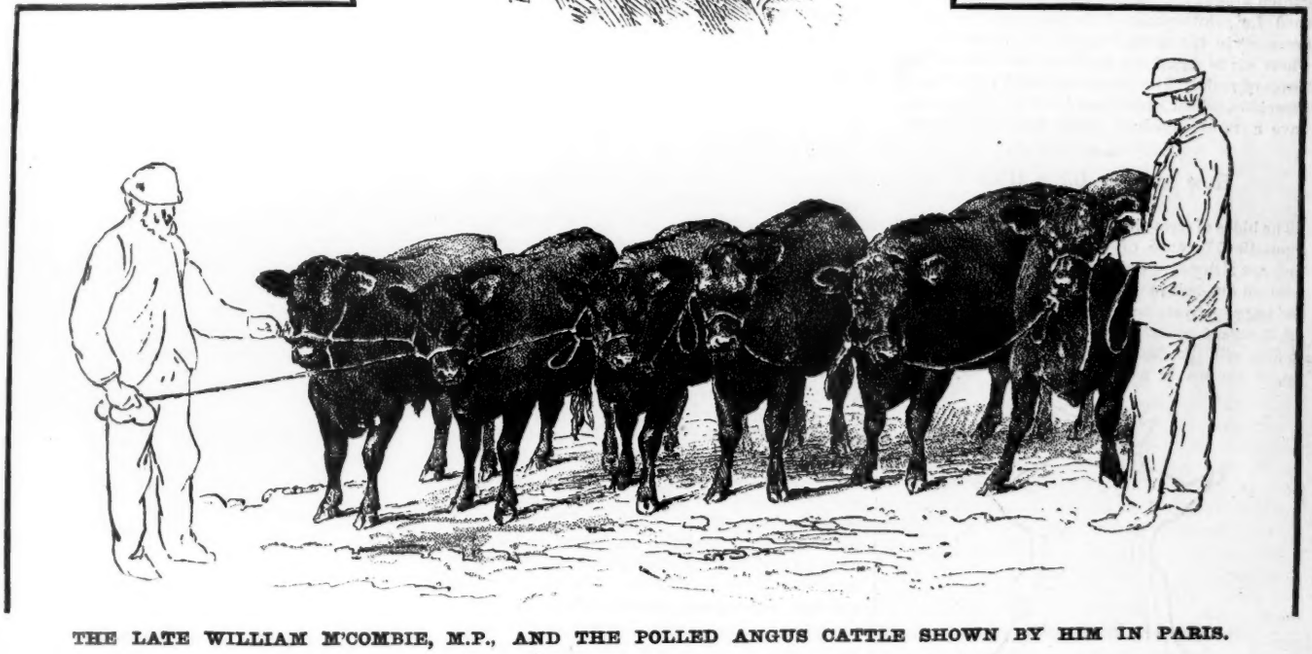
Fig. 2.—STRUCTURE OF A CATTLE SHELTER.

broad roof, for covering a stock-shelter, is shown at figure 2. This can be supported by posts, placed in one, two, or three rows, and with feeding racks along each side and row of posts. Such a shelter could be used for stock cattle which need not be tied up, but would be sheltered and fed only in stormy weather. This form of roof does not require long timbers: planks spliced and spiked, or both together, would be sufficient. The supporting rods, shown in the engraving, are of iron or narrow plank.

Angus Doddies.

Among all the excellent breeds of neat cattle for which the world, and the "new world" particularly, is indebted to the British Isles, none takes a higher economical rank than the Scotch "Doddies," which, since they have been systematically bred, have become great favorites with the graziers throughout our great feeding region. They are a compact, well shaped, hardy race, of tremendous potency of blood. Black predominates almost to the exclusion of white in their coats, which are fine and heavy, affording all needed protection against rain and cold, wind and hail, to all of which the herds of the plains are more or less subject. They are docile, tractable, hornless, and hence to a great degree harmless, while they are able by dint of their activity, and their poll knobs to defend themselves against attacks from their horned associates. It is well known that the frontal bone of polled cattle is very strong, and rises in the center in a prominent knob, making a really formidable weapon, though one not likely to inflict dangerous wounds upon other animals. There is no better beef in the world than that of the Angus cattle. The choice parts are well developed, the fat is laid on evenly, and the meat beautifully marbled, while the percentage of offal is very small. The late William M'Combie, M.P., of Tillyfour, Scotland, certainly did more than any other breeder to bring Angus cattle to their present position. Seeing the admirable points presented by certain individuals, the noble size of others, and the tendency to early maturity and quick fattening, which existed less as the uniform characteristics of the breed, than as marked exceptional excellencies of individuals, by a long course of breeding, studying family characters, and crossing to combine desired qualities, he really established the breed as we now have it. As the founder of the well-bred Angus, or "Aberdeen-Angus," breed of cattle, his name will be remembered with those of Bakewell, who commenced the systematic improvement of English long-wool sheep and long-horn cattle, the Collings, to whom short-horn breeders owe so much, and other distinguished breeders of Great Britain.

The wonderfully high finish shown by the well fattened Aberdeen-Angus steers and heifers at the fat cattle shows, at Birmingham, Smithfield, and Paris, and at Chicago and other American shows, has made them winners time and again in competition with the most superb animals of other breeds. At the Paris show of the year 1878, they won the highest honors against all Europe, Great Britain included. The Smithfield Club Champion Plate (five hundred dollars) and the great Gold Medal were won in 1881, and in 1883 and 1884 the Elkington Hundred Guinea Cup at Birmingham also went to the black skins. (This is a champion cup to be won by the same herd two years in succession, or three times not following one another.) In this country, the grade Angus beef cattle, shown at Kansas City, Chicago, New Orleans, and at other shows, have fully opened the eyes of cattle men to the remarkable capabilities of the "doddies" as beef producers. Considerable importations of these cattle have taken place recently: among them are representatives of all the prominent families established by Mr. M'Combie. These are so good and so well pedigreed, that it is safe to say that better blood does not exist than that which we now have in America. The future of the breed in this country is assured. It is admirably adapted to shipping by rail or steamer. Its grades possess the characteristics of their sires to a remarkable degree, maturing early, keeping themselves in thrifty growing order on only fair forage, and fattening up very quickly when they get grain. We present our readers in connection with this statement of the merits of the breed, a likeness of Mr. McCombie, and of the group of six young animals, as exhibited by himself at the great Paris show of 1878, where they were not only the youngest competing herd, but were in the most perfect condition, and exhibited such uniformity of characteristics and excellence of points, that their right to the grand prize was scarcely questioned from the first. Breeders from all over the civilized world saw and admired that group, and the fame of the Scottish breeder and his favorite doddies was established. From that day to this they have won not only prizes, but public confidence, and it is hardly too much to say (though perhaps it is not modest in us), that the highest prize they can win seems now within their grasp—the confidence of the American farmers and cattle men, that they are the best breed of beef cattle in the world. The *American Agriculturist* has long (and persistently) advocated Polled cattle for the plains, and especially for shipping alive to European markets. There is nothing equal to them for this end, and the facts as reported by shippers and breeders abundantly corroborate these views.



THE LATE WILLIAM M'COMBIE, M.P., AND THE POLLED ANGUS CATTLE SHOWN BY HIM IN PARIS.

Redrawn for the American Agriculturist from Illustrations furnished us by Robert Campbell Auld.

FEEDING GREEN SOILING CROPS.—Some mischief may occur by the incautious use of freshly cut green fodder at this season. The succulence and sweetness of sweet corn, which may now be ready for feeding, will tempt cattle to eat it too greedily, and bloating may follow. We have always avoided this danger by cutting a day's supply ahead, and never feeding it freshly cut or when wet with rain. The day's feeding is brought to the barn and is left to wilt, after which there is no danger to the cattle. This also avoids the necessity of feeding it wet when it is cut for immediate use on a rainy day.

Cooling the Cellars.

A great mistake is sometimes made in ventilating cellars and milk houses. The object of ventilation is to keep the cellars cool and dry, but this object often fails of being accomplished by a common mistake, and instead, the cellar is made both warm and damp. A cool place should never be ventilated, unless the air admitted is cooler than the air within, or is at least as cool as that, or a very little warmer. The warmer the air, the more moisture it holds in suspension. Necessarily, the cooler the air, the more this moisture is condensed and precipitated. When a cool cellar is aired on a warm day, the entering air being in motion appears cool; but as it fills the cellar, the cooler air with which it becomes mixed chills it, the moisture is condensed, and dew is deposited on the cold walls, and may often be seen running down them in streams. Then the cellar is damp, and soon becomes moldy. To avoid this, the windows should only be opened at night, and late—the last thing before retiring. There is no need to fear that the night air is unhealthful—it is as pure as the air of midday, and is really drier. The cool air enters the apartment during the night, and circulates through it. The windows should be closed before sunrise in the morning, and kept closed and shaded through the day. If the air of a cellar is damp, it may be thoroughly dried by placing in it a peck of fresh lime in an open box. A peck of lime will absorb about seven pounds, or more than three quarts of water, and in this way a cellar or milk-room may soon be dried, even in the hottest weather. A bushel of lime absorbs twenty-seven pounds of water, and still appears as a dry powder. In this condition it will be very useful to spread over the garden or lawn, or around fruit trees, or it may be used for white-wash. This precaution is often necessary in the dairy, because of the prevalence, where air is damp, of mildews, and the various forms of mold. The orange and red kinds of mold especially, which sometimes form upon the cream, have a most injurious effect upon the butter.

How to Take Off a Hide.

The hides of farm-slaughtered animals have a poor reputation, because of the careless way in which they are stripped. Calf-skins and sheep-pelts are reduced one-half in value by being cut and gashed, and improperly stretched. When a hide is stripped off, it should be stretched at once, and pegged out to dry, with the flesh side upward. If it is rolled up, or thrown in a heap and left to dry in that

Fig. 1.—BADLY STRETCHED HIDE.

shape, it is so mean-looking that a buyer will offer only half its real value. Figure 1 shows how a calf's hide looks when it has been badly stretched. It appears to be much smaller than it is, and of course less valuable. At figure 2 is shown the same hide as it would have appeared if properly stretched and dried. If any one were buying the hides from these representations, it is evident which he would pay the most for. A few hints in regard to taking off a hide, may be useful. The throat should never be slit cross-wise, either in killing or in taking off a hide. The skin is slit from the chin down the brisket, in a straight line to the tail; it is then cut around each hoof; the hind legs are slit behind over the gambrel, but the front legs are slit up in front, over the knee. This leaves the skin in good shape for finishing the leather. The head and legs are first carefully skinned, and all cutting the skin is avoided. The skin is then easily drawn off by taking hold of it firmly, and pulling it steadily. It is then spread out evenly on a floor, and salted with fine salt. If there is but one, it is best to stake it out as soon as the salt has taken, and dry

Fig. 2.—PROPERLY STRETCHED HIDE.

at once in a cool, shaded place. If there are more than one, they are laid upon each other and salted quite freely, and afterwards they are thoroughly dried. If the skins are to be kept on hand, they should be closely watched for moths or grubs.

Growing Clover for Seed.

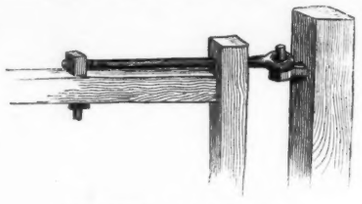
There are two varieties of clover seed quoted in the market report: the "large clover seed," and the "medium clover seed." The distinction does not refer to the size of the seed. There is no difference in this respect—or, if any, the large variety has the smaller seed. The large variety grows later and larger, and has coarser stems than the so-called "medium clover." In growing a crop of seed, there is a decided difference in the management of these two varieties. Seed from the medium variety is grown as a second crop. Or, to be more explicit, let us suppose that we sowed medium clover in the spring of 1884, with wheat. After the wheat is cut, the clover is pastured lightly, or better still, not at all. In the spring of 1885, the crop is allowed to grow, and in June or July, 1885, is cut for hay. After the hay is off, the clover is allowed to grow and to blossom, and mature its seed. In September or October the crop is cut for seed. In other words, we get two crops in 1885, one for hay, the other for seed. In 1886, the field is plowed up and planted to corn or potatoes, or it may be pastured, or, if we sowed timothy seed as well as the clover, it may be allowed to grow and be cut for hay. On the other hand, had we sown the large clover seed with the wheat in 1884, and wished to raise a crop of seed in 1885, we could not have raised both hay and seed. Instead of cutting the first crop for hay, we should have let it stand until the seed was ripe. Sometimes the field is pastured until the first of June, and allowed to go to seed afterwards.

In regard to raising seed of the common Red Clover, a few points should be observed. First, the first crop should be cut early for hay. If it is a heavy crop, it should be cut if possible, before any portions of it lodge. It is very desirable to cut the first crop evenly. Now that our mowing machines are so perfect, this can easily be done. After the hay is drawn, close up the field and let no stock run on it. This is all that is required until the crop is ready to cut. We can do nothing to increase the yield of seed. That will be determined by the previous preparation and fertility of the soil, and on the season. The yield varies greatly—from one bushel, to seven bushels per acre. Four bushels per acre is considered a fairly good crop. Second, in old times, cutting, and thrashing, and cleaning clover seed, was slow work. Now there is no operation on the farm more easy and simple. We can cut the crop with a mowing machine, and rake it into windrows with a steel rake. But this is not the better way, as we lose a good many heads of clover containing seed. A decidedly better plan is to cut the crop with a reaper, and carry the clover on the platform, until we have a good-sized heap—say about as much as the platform will conveniently hold. The larger the heaps, the less we lose from scattering. It will be necessary to have the reaper in good order. Some of our combined machines are admirably adapted for the purpose. We need sharp knives, and good guards, and a little quicker motion than when cutting grain.

Third, after the crop is cut, there are two methods of management usually adopted. One is to turn over the heaps, and as soon as dry throw them into cocks, and when thoroughly cured, draw in. This gives us a nice looking field, and a nice bite of clover for sheep in the fall. The other method is to let the heaps stay just where the machine left them, and when you get ready sometime before Thanksgiving day, draw them in. Rain, frost, snow and alternate wetting and drying, mildewing, and a moderate degree of rotting, does not hurt the seed. Still, we think the first plan will be more in accordance with the aims and wishes of our readers. Perhaps a judicious combination of the two plans will be best. At this season of the year the weather is apt to get worse instead of better, and the sensible farmer will watch his chance, and as soon as the crop is dry enough to draw in, he will not neglect his opportunity.

Top Hinge of Farm Gate.

The most important thing in setting a farm gate is a firm hinge post. The many ways of fixing this post firmly in the ground, we will not now discuss. However firm the post may be, the gate, even if well braced, will sag after a while. Continual use, more or less slamming, and the action of the weather, makes the swinging stile settle somewhat. Abraham Cooper, of Muskingum county, Ohio, sends the accompanying suggestion, with a sketch of a gate hinge which obviates the trouble. The upper hinge is made of a half-inch rod, about sixteen inches long, with an eye on one end and a long screw thread cut upon the other. This thread works in a nut, which nut has a bolt shank and nut whereby it is firmly attached to the top bar of the gate. If the gate sags at all, it must be simply lifted off of the thumbs, and the hinge given a turn or two in the nut; and the same is to be done in case of subsequent sagging. The hinge bolt must of



TOP HINGE OF FARM GATE.

course have some opportunity to move in the stile, and must be set long enough at first to allow the slack to be taken up whenever found necessary.

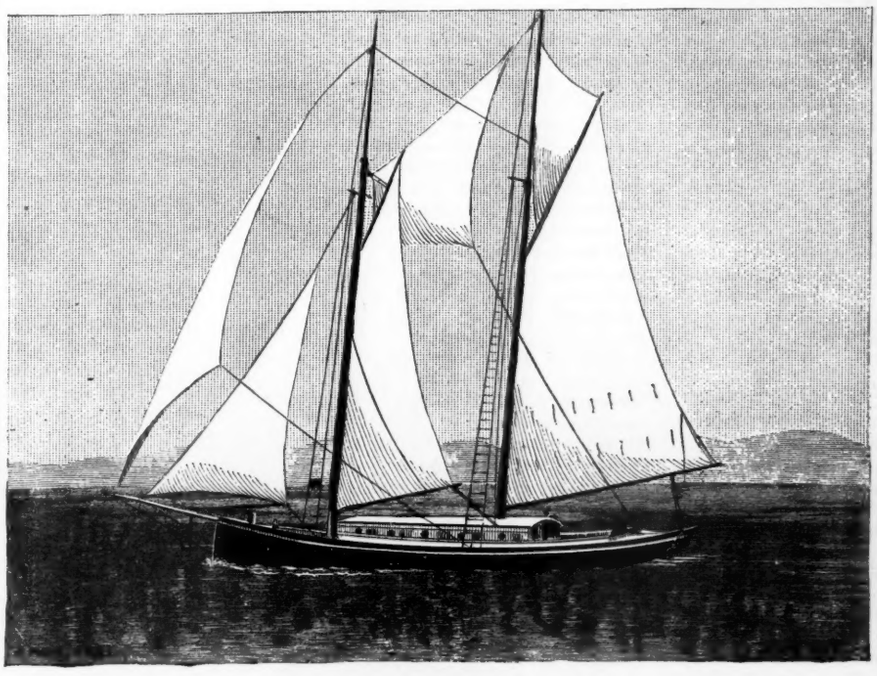
TIME TO CUT FENCE POSTS.—Cutting in the "full," or the "dark of the moon," has nothing to do with the durability of fence posts, although the season of the year at which they are cut, has. Timber decays very rapidly by the decomposition of the sap-wood or alburnum, and by the fermentation and souring of the sap. If the trees are cut in August, when in full leaf, and are not trimmed, the leaves take up and evaporate the sap from the timber, and leave it very dry. This current of sap through the leaves, is made available to cause the timber to absorb various chemical liquids, which may be supplied to the trunk, and these mineral solutions go far to prevent decay. A few auger holes bored in the tree almost through it, and kept filled with the solution, is a good way to apply it.

Yachting for Sport.

ROBERT B. ROOSEVELT.

There are two kinds of pleasure on the waste of waters, one with the large, magnificent, perfectly appointed vessel, of which the cook is king and the steward the high priest, where there is the rule of the uniform from the moment of passing up the side ladder, and where guests and owner are expected to do nothing from the time of weighing the anchor until coming to, except sit on camp chairs or cushioned lounges, and enjoy the food, the wines, and the breeze. The other kind is of a humbler sort, where every one lends a hand, if he knows how—takes a trick at the wheel, at least gives a pull on the halyards, or when culinarily inclined, invades the forecastle and teaches the cook a new wrinkle with the frying-pan.

Sporting minds and papers have been greatly disturbed ever since the arrival in this country of two fast English cutters, over the question of deep draft versus light draft, the benefits of great displacement and outside lead, and the comparative advantages of keel boats and strange foreign rigs, as against the common American type of vessel. There is one objection to the foreign interlopers, however, which is pretty conclusive — the want of sufficient water in most of the bays and harbors of the Atlantic coast to float them. In the South Bay of Long Island a cutter would have to be rigged up on wheels and drawn by horses. There are so many shoals, that the ordinary round-bottomed, timbered sailing craft requires one familiar with them to make certain of the navigation; and what is called a Sharpie, an American invention, which is half box and half boat, is the most comfortable for amateur use. It is the picture of a Sharpie which is here presented, drawn from a photograph taken instantaneously while she was underway; and it was a day in the Sharpie which I am about to describe.



MR. ROBERT B. ROOSEVELT'S SHARPIE.
Drawn and Engraved for the American Agriculturist.

"Don't forget the bread," the skipper had shouted to the young gentlemen, who were going to the depot for the last of the guests.—"Did you remember the bread?" were the first words with which he greeted the party when they appeared, last guest included, at the side of the sharpie yacht.

It was a sad and suggestive moment when they hung their guilty heads, and were forced to admit that they had utterly forgotten their mission. The excursion would have had to come to naught, but the crew, a youth of eighteen years, who was cook, steward, and able seaman in one small person, suggested that there were crackers in abundance, and that the bread left over from the last trip might only be mouldy on the outside.—"Well, I suppose you have plenty of meat?" enquired the skipper, turning upon the last speaker with an air of confidence which was destined to be disappointed.

"Meat?" stammered the embryo cook, "meat? we ate up all the meat." Now this was beginning a yachting trip under discouragements, and it is for that reason I have selected it as a specimen of what can be done, and how much enjoyment can be got for very little. The party were of the right sort for the occasion. Had they been accustomed to the grandeur of the more extravagant style of yachting, there would have been nothing for it but to go home and spend the day at the country seat of the skipper. But they were eager to start, meat or no meat, and found the bread no more mouldy than healthful bread ought to be, and knew that they could catch fish enough for the table—a divine confidence in fate, which speaks volumes for their enthusiasm.

It was a delicious day, one of those we are accustomed to describe as glorious, and which no other term seems to fit. A cloudless sky, a fine breeze that tossed the water into white-edged, merry wavelets, a temperature which was neither too hot nor too cold, and oxygen, or ozone, or electricity in the air that was as bracing as a tonic, and twice as wholesome. The captain had a willing assistant at the windlass, and the crew had several on the halyards, so that the good sharpie was underway in no time, and dashing off for the "inlet," as it is called, or "outlet," as it ought to be, where the waters of the bay find their exit to the depths of the ocean. In spite of their readiness to rough it, the first thought of all hands was of dinner, and as they were bowling along under the bellying sails, an account of edible stock was taken by a sort of council of war in the cabin. "We have plenty of vegetables," exclaimed a handsome youth of twenty-five, who had an appetite in proportion to his size; "let us stop at East Island and dig soft clams. I am awfully fond of clam soup, and they don't take long to cook."

This suggestion met with such unanimous approval, especially the reference to the time required for the preparation of the meal, that it was carried *nem. con.*, and the yacht was soon hove to and lying idle and motionless on the waters, with her jib dragged down at one end and helm lashed down at the other, in spite of the rattling breeze as powerless as some poor wounded bird. The guests, with the tall, well-shaped clam lover at their head, were soon digging up the sandy bottom of the great South Bay in pursuit of the delicious bivalves. The work was done in shallow water, and each of the party, rolling up his pantaloons as high as he could get them, either dug with the pitchfork, or waded around like a stork, picking up the prey from the water as they were brought to light. So the soup was safe and we had bait for the fish.

There were no blue-fish as yet, the finny fraternity having their times, like the fruits and flowers. But "when chestnut leaves are as long as thumb nail, then catch black-fish without fail:" so we caught black-fish and sea-bass in abundance, and we brought appetites to consume them. Then the wind left us, and we drifted slowly back, utilizing that opportunity to get into the small boat and row alongside, and take the photograph, from which the engraving on this page was made. Hardly had we done so, before the wind freshened, making us row our hardest to catch up with our big escort; and after that we went home with full sail, happy hearts, and strengthened bodies, having enjoyed to the utmost, in spite of all drawbacks, a day's yachting for pleasure.

A Southern Stock Range.

It will surprise many stockmen to know that there are stock ranges in the South which equal in extent many of the great ranches of the West, because the general belief is, that the South is not a stock country, and that, although the wild sage and the prevalent weeds of the Western plains furnish the larger part of the feed for the stock in that region, yet grass is indispensable elsewhere. The Southern mountains are covered with the finest timber, almost wholly hardwood, and the soil under this open timber, is carpeted with a dense mat of herbage, which is eagerly cropped by horses, cattle, and sheep. In some places, the forest is unbroken by the smallest clearing for many miles, and the mountains, which rise in wavy crests, like the ocean billows, as far as the eye can see, are one grand sea of verdure. The visitor may ride through the forest for twenty miles or more upon the cattle trails, or the trails of the mountaineers whose cabins are scattered miles apart on the creek bottoms, or in the coves, without seeing a house or a field; but he is never out of hearing of the music of the bells, with which horses, cattle, sheep, and pigs are decorated in this locality, and which denote the presence of the few animals which roam about at pleasure and feed in the woods.

Leaving the pretty village of Webster, in Jackson county, in western North Carolina, and which has recently been made approachable by a new railroad, one may take the road along the Tuckasege river and soon bury himself in such a vast forest as is above described. This river is here more than two hundred feet wide, and is as yet only twenty miles from its fountain head. This fact will give some idea of the abundance of water in this mountain country. Riding along the river bank, one passes the fragrant White Fringe tree, *Chionanthus Virginica*, which grows in profusion along the water's edge. This very ornamental tree droops its deep white fringe over the clear water, and in the still deep pools it is reflected with its dark green background of rhododendrons, and the accompanying kalmias in full bloom, with such distinctness, that every leaf and spray stands out as if in a picture. Such charming pictures are seen continually, until the river is left at a "fork," when the road plunges into the forest and the traveler begins the ascent, winding back and forth across a swift stream which rushes down the steep narrow valley. A few farms have been carved out where the bottoms spread out sufficiently to make a field, and the crops of wheat, and corn, and clover, and grass testify to the fertility of the soil. In a few miles, the stream is reduced to a mere brook, and at a farm, away up in the gorge, the road also (in the colloquial phrase

of the country) "peters out," and goes no further. Crossing the farm fence, the borders of a tract of thirty thousand acres is reached, upon which not one soul is living; adjoining this a solid tract of eighty thousand lies, and beyond that there are more wide "boundaries," as these tracts are called, each of which has but a single owner. All this land lies "out of doors." It is unoccupied and unused, excepting as a common range for the cattle of the neighbors, who may own from four to a score of head. The trail through the woods winds around the flanks and slopes of the mountains, and gradually rises until a pass is reached; then it follows the ridge to the top of a "bald." All along this trail, the rich black soil of the mountain sides is covered with a profusion of flowering herbs, among which are various trilliums, white, shaded, and a deep chocolate in color; the Flame-colored Azalea; the Carolina Allspice (*Calycanthus*), with its spicy, maroon-colored flowers; the Yellow Moccasin flower, and others, so beautiful that one wants to stay and gather them. There is rarely any rock to be seen; here and there some loose stones, and a sharp bluff, which is covered with various mosses and ferns, are all the rock that is visible. The pass is an open wood, under which grows a dense carpet of grass, Kentucky Blue grass and Redtop being the principal kinds. Along the ridge, the woods are more open, and the grass spreads out until the "bald" is reached, where there is no timber, but a smooth, green, grassy carpet, covering perhaps a hundred acres. These grassy balds are a feature of this country, and some of them cover one hundred and fifty to two hundred and fifty acres of smooth land, free from rock and consisting of deep black rich soil. At an elevation of five thousand feet and less, or more, the air is cool; the moisture is precipitated freely; springs break out below the crest, and joining far down the easy slopes, form cool branches, which all add to the volume of the great river, the Tennessee, which drains the whole of this region. The view from the bald is indescribable. A great ocean of rolling mountains, all covered with green forest, and not a human habitation to be seen. One clearing, up near the top of a mountain, is the only evidence of human occupation; and this is a cornfield. On the other side is an "old field," which is covered with grass, and is conspicuous by two black balsam trees standing alone in the field. Among the highest peaks, the clouds float, and they come tumbling over the passes, to disappear as they are dissolved in the currents of warm air which rise from the valleys. Here is room for "the cattle upon a thousand hills." There are more than a "thousand hills" in sight, and not one beast to a hill. What an infinite waste of wealth! What vast wealth lies here undeveloped, for want of men to gather it in! With a fence around one of these great tracts, one fat beast to every five acres could be reared, and the profit of it would more than pay for the land every year. There is practically no winter, and the summer is so cool that mosquitoes cannot live. And the magnificent timber remains for future use, while now it gives coolness, shelter, and overflowing streams in which the brook trout play and leap. And yet it is in the heart of civilization, for as one turns to take a last look to the west, the rumbling of the cars and the scream of the locomotive are heard, as the train winds around the mountains and scales the high passes, at no great distance.

TIMBER FOR FENCE POSTS.—If there is any necessity to plant timber for fence posts, Red Cedar is the first choice. It is a hardy tree, no insects appear to trouble it, it does not make a dense shade or take up much room, and it is exceedingly durable. It grows more rapidly than is generally supposed. Chestnut is perhaps the second choice, for several reasons, but it is not as good as the cedar, because of its greater spread of branches; and it is not so good a fence-row tree, the cedar standing first of all in this respect. These two trees are so desirable, that no one need ask for more. As the wire fence is destined to be the common one of the future, a supply of posts is all that need be provided for. Rail fences will soon be a thing of the past, and there are few farmers who will regret to give them a permanent leave of absence.

The Dutch, or Spring-flowering Bulbs.

Those not in the trade can have no idea of the great number of flower bulbs imported into this country from Holland annually. The number brought into England is proportionally larger, as flower culture is more popular there than with us. The principal Dutch bulbs are: Tulips, Hyacinths, Narcissuses, and Crocuses, and several others in much fewer numbers. To those fond of flowers, who have a very limited area of soil, or none at all, there is no class of plants so well suited as these. They will come into flower if merely supplied with water, though they will give finer blooms in proper soil. These bulbs, if planted in the open ground, are in flower in early spring. If potted, they may be had in bloom much earlier, and are especially suited for those whose only garden must be at the window. Details of their culture will be given another month. Just now, we would only call the attention of flower-lovers to these bulbs, that they may be ready to avail themselves of the earliest importations. In these bulbs, the "growing" is, so to speak, all done beforehand by the Hollanders. The bulb is really a packing case, in the centre of which are the leaves and flower clusters, nicely packed away, and surrounded with stores of food in the scales, much like those of an onion. A bulb is very similar to a bud. If we cut open, lengthwise, the bud of a Lilac, or a Horse-chestnut, a magnifier will show a rudimentary flower cluster in the center, surrounded by rudimentary leaves. This was all prepared in the previous summer, and is ready to expand and develop rapidly in spring; the rudimentary flowers and leaves having only to enlarge and open. A bulb, like that of a Hyacinth, when cut through from top to bottom, will present an appearance much like that of such a bud as we have mentioned. The rudimentary flower cluster and leaves will be found at the center, ready to push up and develop, whenever the needed heat and moisture are supplied. This flower cluster is surrounded by thick, fleshy scales. These scales are the lower parts of the leaves of the previous year, which are made to hold the nutriment needed when the bulb starts into growth. The bulb then has made its preparative growth the previous year. The flower cluster and the leaves were all formed—in an undeveloped state, it is true. After these are all prepared, the plant goes to rest, and it then will remain dormant for a long time. The bulb is taken out of the ground, and remains dry for several months, as it will only start into life again when it can have the needed heat and moisture, resembling a seed in this respect.

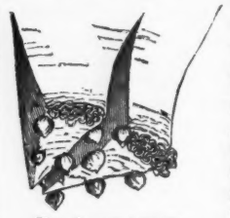


Fig. 1.—HYACINTH.

Fig. 2.—HYACINTH BULB.

Bulb culture in Holland is an important industry, the soil and climate, with the low cost of labor, favoring the culture, especially in the vicinity of Haarlem and a few other towns. It is reported that one hundred and twenty-five acres, near Haarlem, devoted to Hyacinths, have brought in an annual revenue of one hundred and fifty thousand dollars. The value of the yearly shipment of bulbs from the small village of Bloemendaal is estimated to be one million dollars. Where bulb culture is the main industry, it is carried on in a rotation with other crops. When one takes up a Hyacinth bulb which has flowered and has been left in the ground until the leaves have withered, and the bulb ripened, he will find that the bulb has, at its base, several small bulbs, from the size of a large pea to that of a hickory nut. If these small bulbs are planted out, they will, in a few years, grow to be large enough to bloom. This is the natural method of propagation, but is quite too slow to suit the bulb-growers. The gardener has various methods by which to multiply plants very rapidly. For example: The Raspberry and Blackberry form new plants quite rapidly, but not sufficiently to suit the nurseryman, who cuts the roots of these plants into pieces an inch or more long. These, by proper treatment, will each form one or more buds, which the roots would not have done, had they remained upon the plants. In a similar manner, the bulb-growers cause bulbs of various kinds to produce more small bulbs, or buds, than they naturally would do. One of these methods is shown in figure 1. At the base of a bulb, a Hyacinth for example, is found a hard, flat plate, upon the upper surface of which the scales and all other parts of the bulb are set. If this be gashed, or notched, as in figure 1 (which shows only a small portion of a bulb), numerous little bulbs will be formed along the margins of the wounds. If a portion of the bulb be scooped out, as in figure 2, a great number of small bulbs will be produced along the cut edges of the scales. By these methods a single large bulb will produce many more small ones than it naturally would. These, by proper treatment, will, in a few years, grow to be salable bulbs.

Roadside Shade.

A country road without shade, upon a hot, sunshiny day, has charms for neither the pedestrian nor other traveler. Were it not for the utter neglect of our highways, except as a means of inter-communication, the country would lose much of its picturesqueness. The land once given up to the district as a highway, is neglected, as a rule, by its owners—as much so as if it did not belong to them. Briars and thistles, mulleins and rushes, forest trees, rocks, wild flowers, and grass, dispute possession of the roadside. But for the presence of evil weeds and tangles, which harbor vermin of all kinds, it might be the best use to be made of the roadside, for this confusion of wild nature is very charming. If let alone in most parts of the country east of the Alleghanies, the roads would soon be comfortably shaded with a great variety of native forest trees, hung with vines, and the ground beneath them would be a nursery of wild flowers.

The anti-weed laws which the legislatures of several States have passed, have a tendency to change this. The result is, that where the laws are enforced, shade trees as well as brambles and other useless growths disappear together, unless, indeed, the trees were already large. Those laws require the mowing off of the brush and wild growths by the roadside, several times during the season. This practice quickly brings in grass in the place of shrubs and weeds. On new roads, the young shade trees disappear, and on most highways, no trees less than three or four inches in diameter escape, while the farmer, through whose land the road goes, comes to the aid of the "highway-man," and makes a clean sweep, felling every tree, small and great.

The ideal road through cultivated farming land, or fenced ground anywhere, is, pre-supposing a good roadway, one with broad, grassy areas on each side of the way, a foot-path on one or both sides, and shade trees (if possible, natural forest trees), at convenient distances and of various kinds, casting

their shadows upon the foot-path at least most of the way. The whole road should not be at any point all day in shade, but the sunshine should reach every part of the surface at some time in the day, and remain several hours.

Where a road is laid out through a wooded piece of ground, where the natural forest growth is cut away for the road, and so young trees may be selected and left to grow by the roadside, it is often more difficult to secure a growth of proper shade trees, than where the road goes through land free from trees. The country boys seeing a nice young tree starting straight, smooth, and comely, are attracted by it, and are almost sure to want it for a riding whip or a cane, or for some other purpose, and so off goes its top. They are not malicious about it, but it never occurs to them that such a tree is worth more to them as it stands than as a whip or a walking stick; and, least of all, do they think of it as having been especially designated as one of the future shade trees of the road. This is one class of passers, by whom the trees are endangered. Another class are real vandals, and will cut down a tree because decent people are pleased by having it grow. For such we need stringent laws, protecting roadside shade trees. The so-called "stump laws," which some States have, hardly cover it. Local organizations for tree planting are doing a useful work in many parts of the country, by fostering these roadside shade trees.

Elders, Native and European.

We have in this country, that is, in the older States, two species of Elder. The most common, the Black-berried Elder (*Sambucus Canadensis*), is very frequent along the banks of streams and in moist grounds. It is one of the few native shrubs that are disposed to be troublesome in cultivated grounds, and make their extermination necessary. It has very long roots, which are tenacious of life, and make it difficult of eradication when it once becomes established. This species bears its flowers, as well as its berries, in broad, flat clusters. The

EUROPEAN ELDER.

flowers are used to make "Elder-blow tea," a popular domestic remedy in fevers, and the berries are gathered to make "Elderberry wine," which is probably no worse than other domestic "wines." The berries are sometimes, in the absence of other fruits, used for pies. Another species, common in rocky woods, in the Northern States, is the Red-berried Elder. This has its flowers and its red berries in pyramidal clusters. This (*Sambucus pubens*), is often called "Poison Elder," though it is no more poisonous than the black-berried species. There is a large and tree-like species on the Pacific Coast (*S. glauca*), which, as little is known of it, we leave out, when we say that neither of our native elders is of value for ornamental purposes. It is different with the European Elder (*Sambucus nigra*), which is very common in England, where it is much used as a domestic remedy. As an ornamental plant, it is valuable, and may be trained as a small tree, or may be allowed to form a shrub, with many stems. The bark of this elder, as well as its flowers and berries, are all supposed to have medicinal properties. The European catalogues give some twenty or more varieties of this species. These varieties differ in the cutting of the leaves, as well as in the variegation of their coloring, one variety, with golden markings, being especially durable and valuable. The flowers also present a great variety, some being rose-color, and others purple, and there is a variety with white berries. One of the most beautiful ornamental shrubs, or small trees we ever saw, was a variety of this European elder, with very double flowers, in place of the ordinary single ones, each floret appearing like a very minute white rose. The engraving of the normal flower cluster and leaf shows that it is not very unlike in appearance to our common elder.

Forest-Tree Planting.

There are certain of our forest-trees which are very easily moved, at either spring or autumn; others must be very carefully prepared for transplanting. The Black Walnut makes a most superb lawn tree, or a tree for roadside shade, but it is hard to move without preparation. The same is true of many of the oaks, and, in a measure, of the Sweet Gum (*Liquidambar*), Black Birch, Ash, and Tulip Tree, while the maples and elms, the Basswood, White Birch, Pin Oak (from the swamps), and of course willows and poplars, may be moved when the leaves are off, without much painstaking. The preparation which the above-named trees require, is such root-pruning, that masses of fibrous roots may be thrown out close to the stem. The tree selected should be small, say, having a stem not over two inches through. The tap-root—for a strong tap-root will usually be found going perpendicularly into the ground (often larger round than the stem of the young tree)—must be cut off some months before transplanting. One can take away the surface earth around the tree, close to the stem, so as to see where strong lateral roots are thrown out. Then between two of these, and close as possible to the stem, dig down about ten inches deep, and with the hand clear away the soil from the tap root. Then take a long framing chisel, cut it off about a foot below the surface, and replace the earth around the stem. After the tree has recovered from the shock, which it will quickly do, unless the weather is excessively hot and dry—in which case a pail or two of water will help it—the lateral roots may be cut off. This is best done with a sharp spade, not cutting all at once, unless the tree is small and the roots numerous. When the leaves fall in autumn, or before they come in spring, the tree may be taken up with a ball of earth, and it will do as well as an elm or maple. Even hickories may be moved in this way, but they need fully six months' preparation.

The Lily of the Valley.

There is probably no spring flower that is more generally a favorite than the Lily of the Valley. The pure whiteness of its gracefully drooping tiny bells, with their pleasing fragrance, make it popular. Besides being a general favorite, it has a commercial value, and thousands of imported roots, or "pips," as they are called in the trade, are forced into bloom in winter to supply city florists, who find the flowers in great demand. The plant is a native of this country as well as of Europe. Here it is found only on the high mountains, from Virginia southward, while in Europe it grows from the Mediterranean to the Arctic Circle. Common as the plant is in gardens, we seldom see the flowers in perfection, save from forced, imported roots. As the plant is very robust, and will manage to live almost anywhere, it is planted in some out-of-the-way place, and allowed to shift for itself. Few plants respond more promptly to good treatment than this. If the Lily of the Valley is worth having at all, it is well to have it in perfection, with strong stems with many bells, instead of the poor, starved flowers usually seen in gardens. To have it at its best, select a spot which is partially shaded in the hottest portion of the day, and make it very rich by forking in a heavy dressing of old manure—that from an old hot-bed is excellent for this. The plants to set out, are small tufts or clumps, obtained by dividing the masses of an old bed in such a

LILY OF THE VALLEY.

manner, as to secure from two to four or five strong buds to each. Set out these clumps, a foot apart each way, with the tops at least two inches below the surface. The planting may be done in spring or autumn; in either case the plants must grow for one season before a large crop of flowers will be yielded. The bed should have an annual top-dressing of fine manure or rich compost, to keep up its productiveness. The finest bed we ever saw, was one made by the late Wm. F. Heins, a correspondent who will be recollected with pleasure by our old-time readers. The plant frequently bears fruit, the flowers being replaced by berries, as shown in the engraving. The red berries closely resemble those of the related asparagus. Mr. Heins made his bed, instead of with old plants, with those he raised from seed. The vigor of the foliage, and the large size of both the clusters and the flowers were remarkable, and strengthen the view that plants which are continually propagated by cuttings or by division, through a long series of years, become enfeebled, and fresh plants obtained from seeds, are much more vigorous. As might be expected, this bed of seedlings presented differences in the size of the plants, and in the depth of the color of their foliage, indicating that by selecting the finest of these, a superior strain of the plant might be secured. Those who wish to raise seedlings, should crush the berries (each of which contains about a dozen seeds), wash out the seeds and sow them at once, or mix them with very slightly damp sand, and sow the following spring. A good bed of the Lily of the Valley, if near a city, would yield a profit from the sale of flowers to the florists.

FLIES IN THE STABLES.—To prevent annoyance from flies in the stables at this season, the floors should be kept clean and sweet by occasional drenching with water, and sprinkling immediately with ground gypsum (plaster). Persian insect powder blown or dusted through the stable and upon the stanchions and stalls, will be the death of the flies, and if done about dusk, will ensure the comfort and rest so desirable for the cattle.

The Harebell.

Many of our wild flowers are also natives of England. These are often of especial interest, as they have a history. They may be connected with some popular superstition, or in some way related to the "folk lore" of the old country, or are interesting from their mention in literature. The Harebell (*Campanula rotundifolia*), is a native of both countries. The people in early times often gave fanciful names to plants. Foxglove, for example, is a corruption of the Anglo-Saxon *foxes-gleow*, "foxes'

HAREBELL (*Campanula rotundifolia*).

music." The bell-like flowers hung upon a stalk, somewhat resemble an instrument of music formerly very popular, consisting of bells to be rung together. A similar fancy led to providing the hares with music, and the Harebell was thus named. The exquisite lightness and grace of the Harebell is referred to by Scott in the "Lady of the Lake." In speaking of the heroine's light step, he says:

"E'en the slight Harebell raised its head,
Elastic from her airy tread."

Having long been familiar with this descriptive line, it was a memorable pleasure to find the plant itself in an herborizing ramble in the Catskill Mountains. This plant is unfortunately named "round-leaved" (*rotundifolia*); only a few leaves at the base of the stem have a rounded form. By the time the plant is in flower, in July, these leaves have usually disappeared, leaving only the linear stem leaves. The slender stem rarely exceeds a foot in hight, and is usually shorter, and bears from one to ten flowers. The bell-shaped flower is from half to three-quarters of an inch long, and of a beautiful blue. The Harebell is most frequent in nothern localities, and grows especially in rocky places. It is well worth transferring to the garden, where we have several more showy and stately species of Campanula, but none that in real grace and beauty excel the little Harebell. It is at home in the rock-garden, but will do well in the border.

LATE FODDER CROPS.—Millet and Hungarian Grass are the usual late crops for green or dry fodder. Few farmers think of corn so late as this, but we have never failed to get a satisfactory crop of early sweet corn, from planting early in August. Concord and Narragansett are the best varieties where the early fall frosts are feared, as these will grow very rapidly, and they may be planted closely in rows two feet apart—with the seed three or four inches apart in the rows, or four or five seeds together, at distances of eighteen inches. We have had, in some seasons, an excellent growth of Stowell's Evergreen sweet corn, which was planted in the first week of August. Late fodder corn crops, however, require frequent cultivation and good fertilizing, to push them forward, and a good special fertilizer applied just before or after the land is cultivated, will be found very useful.

Water Cresses—How to Grow Them.

Water cress is a very desirable crop for market as well as for home use, under those conditions which favor its growth. Its pleasant and pungent flavor and its healthfulness make it a favorite condiment in the winter and early spring, when other fresh green food is scarce. It is an aquatic plant, and grows best in clear, running spring water, although it may be grown in ordinary garden soil. Where the spring water is so warm that it will not freeze in the winter, and where the beds may be covered with sashes, a very profitable winter crop may be cut, or, at least, a very early spring cutting can be made, which will sell at a high price. As much as a dollar a basket has been the price in the winter season, and seventy-five cents a basket is a common price in the spring. The writer has taken a basket from one foot in length of a four-foot ditch at one cutting, and this first crop repaid four times over the whole cost of the plantation, and the sashes which covered it. A wet swamp, with a sandy bottom, is an excellent place for a plantation. Ditches four feet wide and about eighteen inches deep are cut through the swamp, heading in the springs; and wherever other springs are found along the course of the ditches, it is advisable to lay covered drains to them, so as to add to the supply of water. As little fall as possible should be made, with a view to preserving a sufficient depth of water, and a constant current—enough to keep the water in motion. A space should be left on each side of the ditch of about one foot or more, to rest a plank upon for use in cutting the crop. It is advisable, in digging the ditches, to throw out the muck on one side only, unless the banks are needed to keep out flood water, which may be the case when the ditches are used for rearing brook trout—an addition to the culture which is easy and profitable. The fish feed upon the insects and mollusks which gather upon the cress, and help to keep the plants free from these parasites, and clean. It is necessary to have the ditches smooth and level, so that every part shall be kept covered with water.

To keep up the supply of water in a dry season, and to shut out high water in the spring and fall, a gate having water-tight joinings is built in the ditch. This should be substantially made, or it will give much trouble. A cross cut should be made in the ditch, to receive the frame, which is so firmly bedded in the bottom, that water will not work out under the sill. Boards are driven down into the bottom, closely enough to make a tight joint, and slides are nailed to the frame in which the gate is fitted. A strong gate should be built at the outlet of the ditch, to keep out back water from the stream, or surface water from plowed lands, which would carry in mud and spoil the crop for the season. As the bed is finished, beginning at the bottom and working upward, it is to be planted. The plants are cuttings, which should be carefully made from old beds. These are pushed into the sand or mud, about a foot apart each way, all over the bed, and will soon cover the ground. Or, the bed may be seeded by sowing the seed in the mud as the ditch is made, and trampling it in. An easy way to cut the ditch is as follows: the workman begins at the outlet, and follows the line of the ditch, which is staked out and leveled previously; he sets a portable gate, or dam, to stop the water, about twenty-five or thirty feet above, and digs out the ditch, then plants or sows it at once, and then, removing the obstruction, lets down the water, carefully, to avoid any damage by washing. The dam is moved further up, and the water stopped, and another piece is dry. To prevent spoiling the bottom by trampling it too much, one or two boards are used for the workman to stand upon. The crop is collected by gathering a bunch of the cress together with the left hand, and cutting it off about four inches long. The bunch is rinsed in the water, and is at once placed, as it is held, in the basket. Water cress baskets are made of splints, and should hold about half a peck. The cress is placed in a smooth, even layer in the basket, and one layer upon another, until the basket is rounded up, when two strings are tied across the top and the baskets are packed in crates which hold one dozen each, or are packed in the wagon box, for market.

An Above-Ground Silo.

When we first described the method of ensilage, we expressed a wish that some one would devise a method by which those who wished to experiment upon preserving fodder in this manner, could do so with a moderate outlay. A correspondent of the French "Journal d'Agriculture Pratique," gives his method of making an above-ground silo, which, as it may offer our readers useful suggestions, we reproduce—at least the essential portions of it—in a free translation. A certain number of beams, *A*, figure 1 (which are described hereafter), are laid upon the soil at a distance apart of about two feet. Each one of these beams has a mortice at each end. The corn-stalks are discharged upon these beams and laid crosswise of them, building up the pile very regularly. When this is done, some boards are laid upon the pile, and other beams, *C*, placed directly over the lower ones. The uprights, *B, B*, pierced with holes, are set in place; these pass through the mortices of the beams, and the ends which pass through the lower beam, *A*, are secured below by strong iron bolts, through the

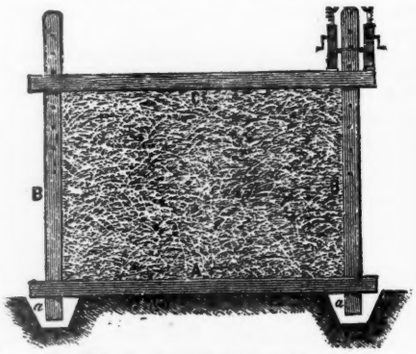


FIG. 1.—AN OPEN-AIR SILO.

holes in *A*. The pressure is produced by two powerful jacks, placed opposite each other at the uprights *B*, and resting upon the beam *C*. The power of the jacks is exercised against a stout iron bolt placed in a hole in *B*. As the handles of the jacks are turned, the beam *C* is pressed down, and when a new hole in the upright *B*, is exposed, an iron bolt is passed through it to retain the pressure, and the jacks are taken to the next upright on the same side of the silo. After all upon one side have been treated, the jacks are taken to the uprights of the opposite side, and the pressure applied. This is continued until the last beam has been pressed at both ends. Pressure is applied in this manner daily, for eighteen days; after this it suffices to re-

FIG. 2.—BEAM OF SILO.

press every eight or ten days. The ensilage is removed by taking off one frame, consisting of two beams and two uprights, and cutting off the corresponding slice of fodder. The corn-fodder preserved in this manner, was the Caragua corn, slightly whitened by frosts. It was in a perfect state of preservation. Only a thickness of between three and four inches all around the pile was black and moldy. One of the advantages of this method is, the ability to regulate the pressure at will. A beam (*A*, *C*, fig. 1), is shown in figure 2; this is formed of two pieces of timber, *a*, *a*, *b*, *b*, separated by the blocks, *c*, *d*. The spaces between the end

blocks, and those next to them, form the mortices *e*, through which the uprights *B* (fig. 1), slide. The correspondent adds: "The silo I have made, holds about two and a half tons of corn fodder. The frames are about two feet apart, and the length of the mass is about ten feet. The two jacks exercise a pressure of over twenty thousand pounds at each end of the beams, amounting in round numbers, to about sixteen thousand pounds upon each square yard. It is to this powerful pressure, that I attribute the perfect preservation of the ensilage in the open air, without the aid of a fodder cutter, and without any masonry or earth-work."

The Shepherd's Purse.

Farmers entertain a wholesome fear of such persistent weeds as the Canada Thistle, while they are but little concerned about humble annual weeds, like the Shepherd's Purse. This plant, the botanical name for which is *Capsella bursa-pastoris*, will be at once recognized from the engraving. It belongs to the Mustard Family (*Cruciferæ*), and is an annual, a native of Europe, and affords an illustration of complete naturalization. It is literally everywhere; on the farm, in the garden, along the roadside and in waste places, everywhere, this weed is to be found. Its small white flowers appear in April; they are followed by the curiously shaped pods, which give the plant its name. It may be found from spring until autumn. Being insignificant in appearance, the plant gives cultivators little uneasiness. The only good thing that can be said of it is, it is easily exterminated. Its presence in cultivated ground is injurious, and should not be tolerated. While it occupies the soil, it is living upon plant food that belongs to the crop. Moreover, weeds take up and evaporate water, as rapidly as do the plants of cultivation, and are thus injurious, especially in a dry time. Though the root

SHEPHERD'S PURSE.

is annual, the life of the plant extends over parts of two years. The seed comes up in late summer or early autumn, and the plant forms a stout root, which bears a rosette of handsomely cut leaves, like those in the engraving, which lie close to the ground. In this condition the plant passes the winter. In its first season, the plant by laying up material in its root and leaves, is all ready for a vigorous growth in early spring. At that time it grows rapidly, soon producing its flowers and ripening its seeds, which fall to the ground, ready to spring up after late rains, to repeat the round. It is evident that the most effective time to destroy this weed, is in its winter state, when it has formed its rosette of leaves; the general use of the hoe in gardens, and of the harrow in fields, would at this time greatly diminish, if not exterminate the weed.

The American Water-Weed.

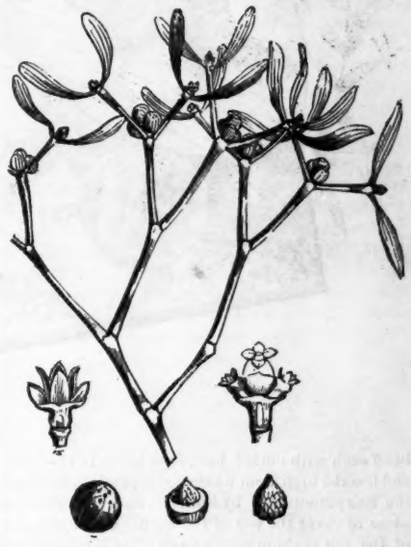
The weeds which trouble our farmers for the most part, have been introduced from the Old World, and largely from England. When our farmers learn that certain of our American plants are troublesome abroad, they may be pardoned if they feel a grim satisfaction that our heavy indebtedness to the Old World for our weeds, is in some degree cancelled. In 1847, there was first noticed in the waters of a canal in England, a small submerged plant, which grew so rapidly as to soon fill the water. The weed soon spread, until nearly every body of fresh water, large and small, in England and Scotland, was stocked with it. It appeared in such quantities in canals as to impede navigation. It grew in ponds and streams which supplied water-power, so that the working of the water-wheels was stopped. It invaded an inland dock to such an extent, that many tons of the weed were removed before the dock could be available for its proper uses. Moreover, ornamental pieces of water were rendered unsightly by being filled with the Water-weed. The plant in question is *Anacharis Canadensis*, but it has borne several other names. The first, or generic name, is from the Greek, and means "without charms." It is found in most of our slow-flowing fresh-water streams and in ponds. The plant has slender, much-branched, brittle stems, the length of which is governed by the depth of the water; it is completely submerged. The engraving of the top of a branch shows the stem closely beset with semi-transparent, one-nerved leaves, of the shape here shown. The plant is dicœcious, that is, its stamens and pistils are borne by different, individual plants. The pistillate or fertile flowers, are upon the upper portions of the plant, where they can reach the surface. The staminate flowers are lower down on the plant; these break away, rise to the surface, where they float about and shed their pollen to fertilize the pistillate flowers. It is noticeable that while this plant grows with such troublesome luxuriance in England, in this, its native country, while very common, it does not cause any serious inconvenience. It is the same with many of our annoying land weeds. In their native localities in Europe, they are not very aggressive, and give little trouble, but transferred to our warmer climate, they assume a luxuriance, and spread with a rapidity unknown to them at home. The Water-weed is said to have been carried to England, attached to lumber, and after it had been once established, it was distributed largely by water-fowl, to the feet of which a small fragment of the plant may readily adhere.

WATER-WEED.

SALT FOR STOCK.—Salt is an indispensable aid to digestion, and cattle and sheep now require a regular supply of it. It is a good plan to have a special time for giving the salt. Once a week is sufficient if it is given regularly and not forgotten. A lump of rock salt kept under cover in the pasture, is a convenient way to furnish this supply, and when the salt is always at hand, the animals will never injure themselves by taking it to excess.

The Mistletoe in Commerce.

Probably most of our readers are aware that the Mistletoe is a small, shrubby parasite. It grows upon various trees. When the seed germinates, the roots penetrate the bark to the sap-wood. From this the parasite draws its nourishment, and goes on growing and branching until it forms a large tuft, from one to two feet in diameter. The European Mistletoe is a *Viscum*. We have in this country a Mistletoe, but so different in its flowers, that it is placed in a different genus, *Phoradendron* (tree-thief), but the habits of the plants are so much alike, that for all ordinary purposes they may be considered as one. The Mistletoe was an important plant to the Druids. When a Mistletoe was found upon an oak (a tree to which it rarely attaches itself), it was regarded as peculiarly valuable and was collected with great ceremony. Fragments of the plant were distributed among the people, who kept them as charms to protect them from disease and all other evils. A custom descended from feudal times is now followed in England, and to some extent in this country: At Christmas, a branch of Mistletoe is worked in with the other greens used for decorating the rooms. If during the festivities a lady is found standing under the Mistletoe, the gentleman who discovers her, has a right to a kiss. The Mistletoe is in great demand in England at Christmas. While it is abundant in the southern and western parts of England, it is very rare in the northern counties and in Scotland. To meet the demand in those parts where it is rare, the nurserymen sell young apple trees, upon the branches of which they have established the Mistletoe. There are many of our own citizens who like to keep up the customs of their ancestors in the old country, and to supply the wants of these, there is imported in time for the holidays, a considerable quantity of Mistletoe. Large hampers filled with branches of the Mistletoe, are brought over by the steamers, and their contents are sold by florists, and at the fancy fruit stores, at a high price. The American Mistletoe grows from New



MISTLETOE.

Jersey, and Illinois, southward, upon various deciduous trees. We have seen it in Western Texas so abundant upon the Mezquit tree, as to completely hide the proper foliage of the tree. The differences between this, and the European Mistletoe, are of interest to, and can only be appreciated by, the botanist. For use in holiday decorations, and in efficiency as a means to promote kissing, it is every whit as valuable as the foreign Mistletoe. We believe in home productions, and if Mistletoe is to be used for these purposes, let it be home-made. We suggest to our many Southern subscribers, that if they live where Mistletoe is abundant, they make an experimental consignment to the cities. The branches should be gathered, the larger the better, and laid in crates, or other ventilated packages.

Summer Souvenirs as Home Ornaments.

Herewith we present designs for summer souvenirs, which country or city dwellers can readily tranform into tasteful home ornaments.

Both a hairpin cushion and a pin cushion for hanging beside one's dressing table, may be made of a pair of cow's horns cleaned and polished. Stuff each with curled hair, bore holes in the tops, and insert a loop from which to suspend them. Make the hairpin cushion by knitting, and loop-stitch a piece to cover the top of the horn. Cover the top of the pin cushion with velvet. Tie the horns together at the bottom, and decorate as desired.

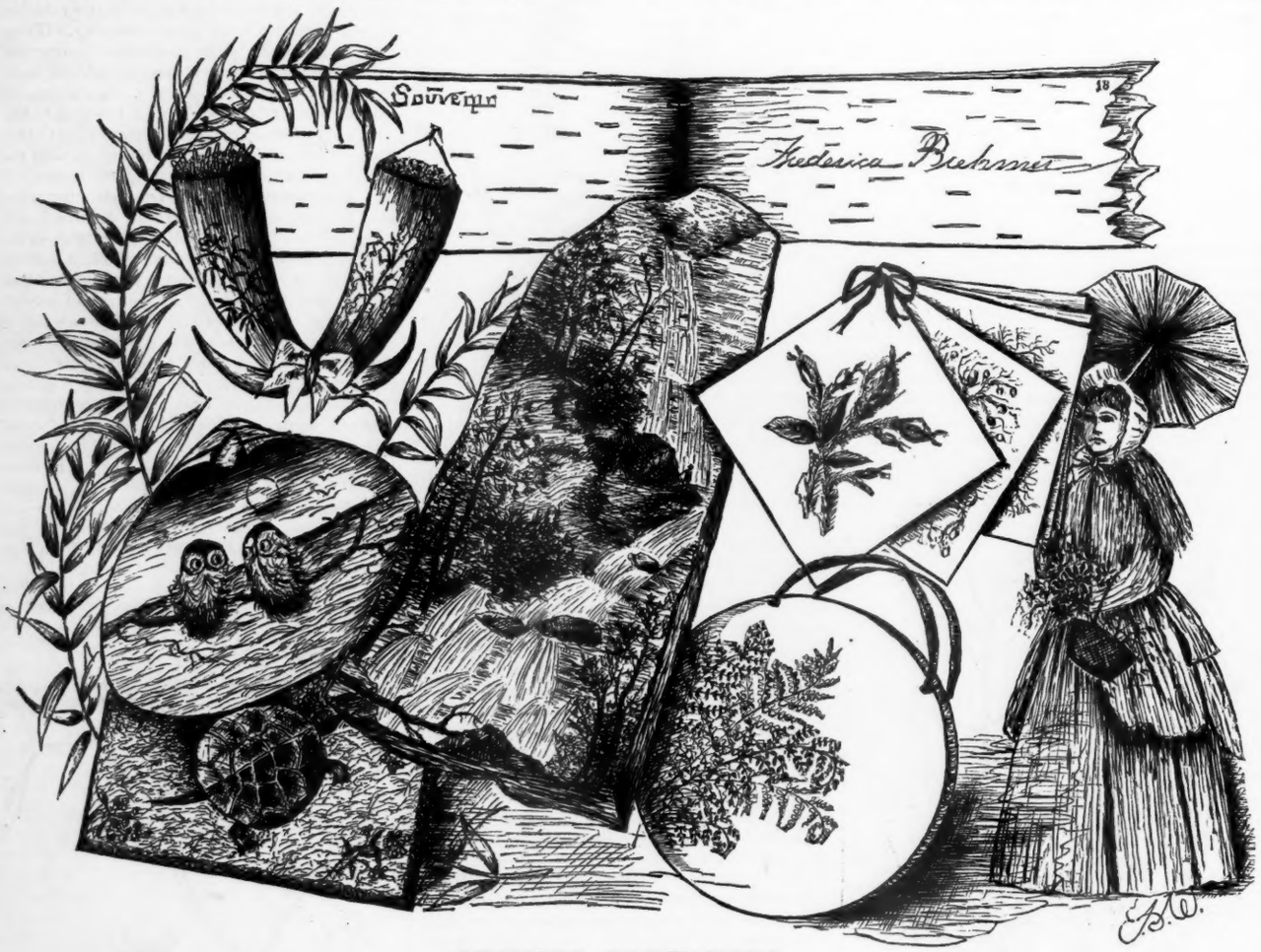
The owls are made of peanuts with feathers glued on them, and with eyes drawn with pen and ink. Fasten them upon a twig with pins. Mount the whole on a clam shell, which may be decorated by a sketch in oil colors. An easel constructed of pine branches makes a suitable rest for the shell.

A common turtle shell may be made into an odd-looking box for the library table, and will be found convenient for holding stamps, pens, etc. When the shell is cleaned and polished, make an oblong box sufficiently low for it to fit over. Glue a rim of cardboard upon the inside of the shell, to fit on the box. Then make a head, tail and legs of bonnet wire, wound with black worsted, and fasten them upon the box. For the foundation of the box, take a piece of thin board and cover the outside with light gray moss; glue the box upon the foundation, and pull the moss over the legs, head and tail, so as partly to conceal them. A branch of bright red berries has a very pretty effect in the gray moss, if that can be obtained. In the center of our collection is a piece of rough rock with a pretty bit of summer scenery painted upon it in oils.

The work-bag in the right lower corner is made of two picnic plates, with a spray of pressed ferns glued on the outside one. After the ferns have been securely fastened, give it a coat of white varnish. Join the plates with a strip of silk two inches wide, by gluing it on the inside of the plates. Leave an open space of four inches at the top; finish this with a narrow ruffle, and run an elastic through it in such a manner that it may draw the plates together at the top, and still allow them to be readily drawn apart to put the work in. Ribbons by which to carry it are drawn through small holes at the top.

The most interesting of all the collection is the sea-moss portfolio. The moss may be dried and used at leisure, after allowing it to soak in water for a few hours. To arrange it on the cards, float the sea-weed in a dish large enough to spread it in, and pick it apart; then slip the card underneath it so that it is just covered with water. Use needles to pick it out and place it where it is wanted. When it is arranged satisfactorily, take up the card gently and lay it away to dry. Moss-roses and other flowers can be well represented with a little patience and taste. The pink used for the flowers does not look so bright in the water as when it is dried. For window transparencies, float the sea-weed over glass; place another piece of glass over it to protect it, bind the two pieces together with satin ribbon, drawing it around as tight as possible, and fasten it securely at each corner. Small loops of the ribbon are sewed to the top, by which to suspend it from the window sash. The autograph book at the top is made of thin strips of birch bark, tied together with ribbon. Many pretty things may be made of birch bark—baskets of all shapes, music rolls, etc. It is well to get a good store of it.

The lady in the corner is made of corn husks. After they are thoroughly dry, fold a number of them together, and tie a cord around them to form the head; tie a few more at the neck, and still more at the waist. When you have enough to make it a good shape, cut them off so it will stand steady, and be about seven inches tall. The eyes, nose and mouth are drawn in ink. The hair is made of corn silk after it is dried. Tie a quantity of it on the head, make a bang in front, and let it hang down loose in the back, or braid it. A poke bonnet is made by folding a piece of husk, and plaiting it to fit the head; pin it on and make a bow for the front of it. To make the over-dress, tie a piece around the neck and at the waist. A sash is placed around the waist, with a large bow at the back. Fold two pieces at the neck for sleeves, and pin them in place. A little basket is hung on the arm, and a bunch of bitter sweet, or pink everlasting, fastened at the waist, as if it were carried in the hand. The parasol fastened to the right arm, is made of a circular piece of husk, folded together to crease it, then opened and fastened securely upon a stick.



SUMMER SOUVENIRS.

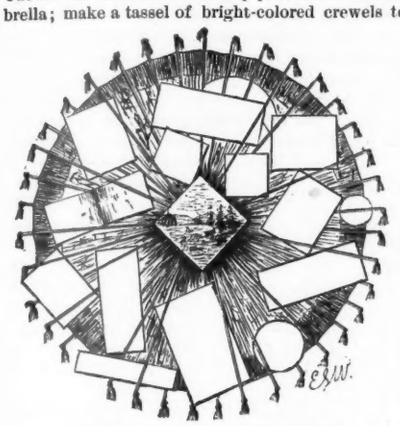
Designed and Engraved for the American Agriculturist.

FRENCH PICKLES.—No. 1.—Half-peck green tomatoes, two heads of cabbage, half a dozen peppers, one cup of brown sugar, half an ounce of mustard (whole), allspice (whole), and celery-seed. Salt over night; squeeze out the water in the morning; cover with vinegar (it takes about two quarts), and boil about one hour.

FRENCH PICKLES.—No. 2.—Slice half a peck of green tomatoes; lay them in salt over night; in the morning squeeze the tomatoes dry; add twelve sliced onions, whole allspice and cloves; dust with pepper; cover with cider vinegar; simmer six hours.

A Japanese Umbrella Card-Holder.

A collection of picture cards may be very effectively arranged upon a Japanese umbrella in the manner shown in the accompanying engraving. Cut off the handle and the top part from the umbrella; make a tassel of bright-colored crewels to

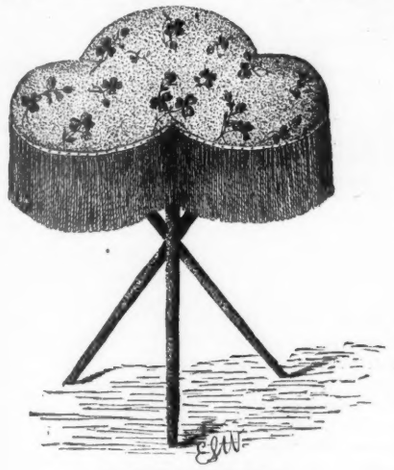


A JAPANESE UMBRELLA CARD-HOLDER.

hang upon the end of each stick. Paste a square card in the center and slip the others underneath the sticks, always guarding against detaching the sticks entirely from the paper. This will be found to be a convenient way to preserve fancy cards, and it also will add much to the decoration of a room.

The Clover-leaf Table.

The top is to be sawed out of inch board in the shape of a clover-leaf, as shown in the engraving. It will be best to cut the pattern out of paper for the carpenter, as he may not otherwise shape it satisfactorily. Three broom handles will answer for the legs. They should be covered with plush or velvet; cut the material to cover them an inch wider than the circumference of the leg; draw a straight line on the stick, and tack one edge of the plush to it with very small tacks; turn the other edge in, and sew on with invisible stitches: nail the legs together, glue small bits of plush over the nail heads to conceal them. Embroider the leaves and blossom on the material to be used to cover the top, as if carelessly. Draw it smoothly over the



A CLOVER-LEAF TABLE.

board, and tack it around the edge. Finish it on the edge with fringe to match the top.

A MAYONNAISE DRESSING.—Beat the yolks of one or two eggs as desired; mash with them the yolks of two cold hard boiled eggs. Then beat in about half a pint of salad oil with a teaspoonful each of dry mustard and salt, a saltspoonful of Cayenne pepper, half a teaspoonful of Worcestershire sauce, a few capers, and two tablespoonfuls of vinegar. This is very fine for chicken salad, omitting the capers and Worcestershire sauce, which are not essential, though preferred by those accustomed to them. This sauce may be kept several days in a cool place in a wide-mouthed bottle tightly corked.

Hints for the Household.

Wash the hair in borax and water....Never melt lard for pie-crust....Do not place too heavy burdens on young shoulders....A burn will be quickly relieved by applying flour wet with cold water.. To freshen carpets, sprinkle with salt before sweeping....If an oven is too hot for baking, set a dish of cold water in it....Polish a stove with newspaper instead of a brush....To bake pies to a fine brown, dip a clean white cloth in fresh cream, and brush lightly over the top crust before putting into the oven....To prevent boots from squeaking, soak the soles in linseed oil....To beautify the nails, hold them for fifteen minutes in warm water. Then while flexible, cut carefully. Polish them with a piece of chamois skin dipped in a mixture of oil and very finely powdered pumice stone. Push down the skin at the lower part of the nails, so as to show the delicate half-moon of white.

A Basket for a Baby.

A basket arranged as shown in the engraving, in which to carry a baby about the house, will be

A BASKET FOR A BABY.

found convenient. To make it, a strong willow basket is needed. Line it with pink silesia, and make a plaiting of the same to go around the top of the basket underneath the lace; tie a bow of pink satin on each side of the handle; a crib blanket placed in the bottom, and a small pillow, complete the outfit. Some play-thing tied upon the handle for the baby to look at, will be appreciated by it.

Fancy Knick-Knacks.

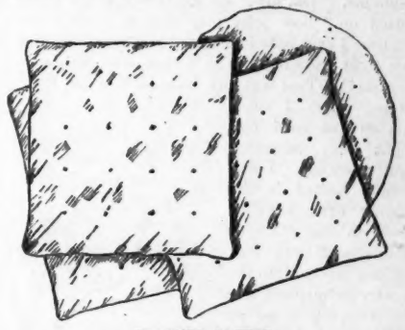
A. C. SAGE.

Art stores now show as novelties graceful vases formed of the tall, slender Italian wine bottles, that come enclosed in a wicker-work casing. The bottles are given a coat of silver, while the basket-work is gilded. Bows of cardinal, blue, or gold ribbon, are tied around the neck. These vases are very light, and require shot in them to steady them.

A dainty fashion for ladies, is to have the card-case match the calling costume; or pretty ones can be easily made of velvet or embossed satin for gifts. The foundation is a piece of coarse linen, six inches long and seven wide. Baste on the dress material or velvet, for the outside, and some delicate color for lining. A monogram is pretty, embroidered in gold thread on one cover. The pockets for the cards should be the same as the outside. Stitch the edges of three sides together on the wrong side; then turn, and overhand the last side with fine silk. This will be found convenient as well as pretty.

The prettiest baby blanket I have seen was made of what is called white "flannel blanketing," a luxuriously soft, fleecy material, and lined with cider-down cloth, with an inter-layer of wadding. Running diagonally across the center from the left-hand corner, was thrown a graceful bunch of daisies and leaves; the petals of the flowers being formed of narrow white ribbon, and the centers worked in two shades of yellow silk, while the green leaves were embroidered in crewels. Two inches from the edge, was a bordering of light blue satin ribbon, three inches in width, caught on with fancy stitches, in pink and olive silk: the whole being finished with a fringe of white Shetland wool cut into strands and knotted in around the edge.

The newest thing, however, for Afghans, carriage robes, and other large pieces of work, is Queen Anne darning; which consists in darning the



CRACKER SACHET.

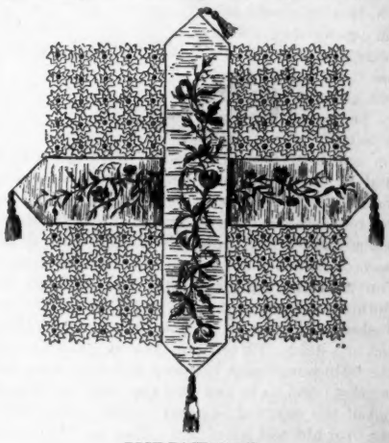
back ground, leaving the design in relief. Honeycomb cloth (not flannel) is good material for this kind of work, and also for the German cross-stitch, a style of embroidery which is being revived.

Cracker Sachets.

A novelty in sachets is to make them in the form of crackers. To do this, cut two pieces of crinoline the shape of the cracker to be imitated, and cover each with silk, as near the color of the cracker as possible. Place a layer of cotton between the halves, sprinkled with sachet powder, and overhand them together. Tack the surface to indicate the holes, as shown in the engraving. Last, pass a very hot iron lightly over it, enough to give a brown tinge without scorching. These may be made in a variety of shapes. Small "knick-knack" crackers make pretty little ones, but these are too small to emit much fragrance.

A Tidy Made of Rick-rack.

Cut out of white wiggan a number of round pieces the size of a cent; sew braid around the edges, just catching it by the points; then sew another run on the inside of that by the points, so that it laps over the other enough to conceal the wiggan. Draw several needlefuls of yellow worsted through the center, bringing the ends on the tops every time to form a tuft; pick the worsted out with a pin to fill the space, and make it look prettier. Sew enough of these "daises" together by the



RICK-RACK TIDY.

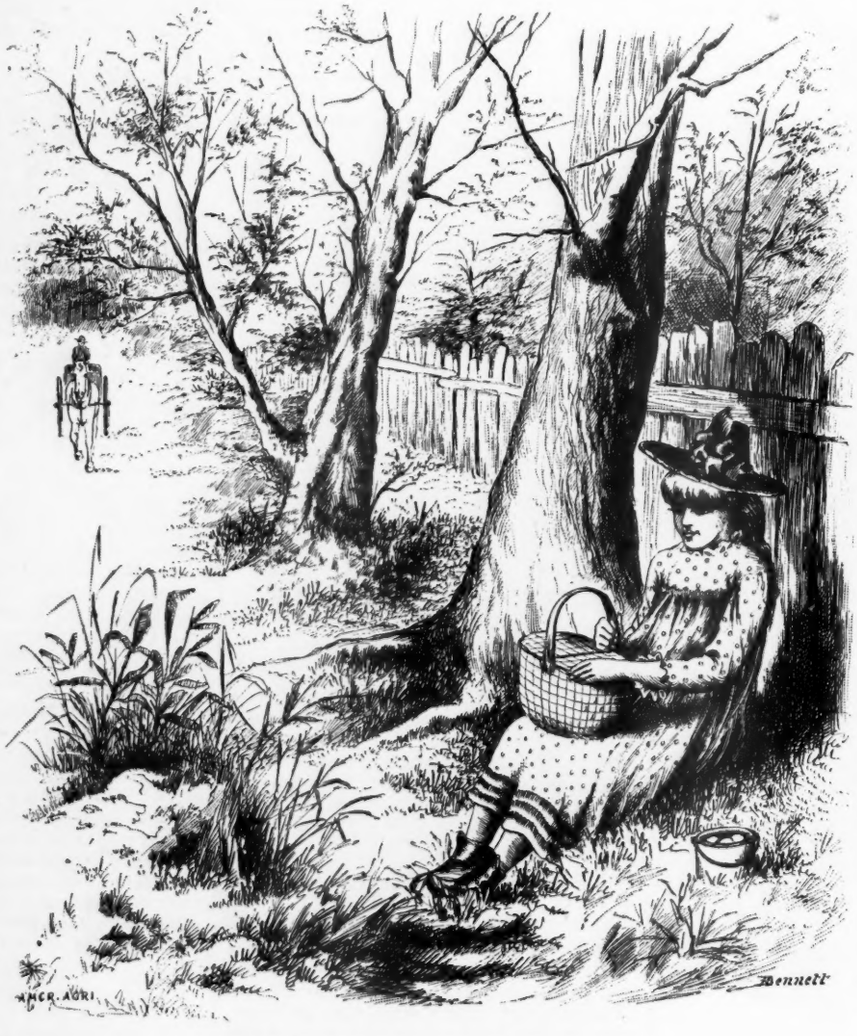
points to form a square. Four of these joined with yellow satin ribbon, make the tidy, as shown in the engraving. Finish the ends of the ribbon in points, and fasten yellow plush tassels on each. A little embroidery on the ribbon may be added if desired.

BOYS & GIRLS' COLUMNS

"Ben and I."

"Would you like to take a ride?"—"Oh, yes! if you please, thank you." Her eyes fairly danced with delight as she climbed in and seated herself beside me. "Oh, my!" she exclaimed, as the horse trotted on, "how jolly nice this is. This is the first time I ever rode in a buggy in all my life, and I am eight years old. Why it runs as smooth as—as glass!"—That was my introduction to Ettie Brown, whom I overtook on the road one bright May morning, eight years ago. I had recently settled in the thriving little town of B——, in the State of Illinois, and was that morning driving into the country on business. She was tripping along as merry as a lark, with a tin pail in one hand and a small basket in the other. "Where are you going?" I ventured to ask.—"I'm going to Mr. Wicker's to get some eggs, and a hen to sit on them. Mr. Wicker sold them to Ben. Ben's my brother, and he's two years older than I am. He had the measles this spring—I had 'em too—but I got well right away, but Ben didn't; and Doctor Wills told ma she would have to get him some fresh milk every morning to make him well and strong again; and so Mr. Wicker told Doctor Wills that he would give ma a quart every day if she would send for it, and so I go to Mr. Wicker's every morning for it. It is two miles from our house to Mr. Wicker's, but I start at five o'clock and get back in time for breakfast. I see so many pretty birds and things that I like to go awful well. Mr. Wicker told Ben, that he would sell him a mess of eggs for a dollar, and wait a year's time for the money, and lend him the sittingest hen he has on the farm to hatch 'em out; and I'm going to fetch them now. They are a new kind of eggs—Plym—Plym—Plymmer—rockets, and Mr. Wicker's going to teach Ben how to get rich on eggs—I mean raising eggs and selling them. Ben's getting well now, and I'm glad he is, because we need him to help me carry the clothes. You see ma washes for folks, and we fetch the clothes and carry 'em back again after they are washed. You know pa got run over by a train, and he's dead. I'll tell you how it was: You see one train was coming this way, and one was coming that; and pa he saw this one, and he stepped out of the way, and he never saw the other, and it ran over him and killed him. Poor pa! You know ma's lame, but she has to work to raise Ben and me. We have a house and one acre of land, but there's a mortgage on it for fifty dollars, and Mr. Eaton—he's the bank man—he said he didn't care for the money if ma would just pay the—the impress every year, and that's four dollars. Ma thinks he's pretty good. Don't you? We need lots of things, and when Ben and I grow big, we're going to earn money and buy them. We are going to build a pen for the chickens, and a house for them to lay in, and Ben says we're going to make lots of money; and then ma won't have to wash so much, and—oh, please stop! This is where Mr. Wicker lives." She popped up and jumped out over the wheel almost before the horse stopped.—"That isn't the way to get out of a buggy. You must wait until the horse stops and I turn him—so; then you can put your foot on the step and get down easily. See?"—"Oh, yes. Please excuse me. I thought you got out over the top. I'll know better next time, see if I don't! Ma says I do everything before I get ready, but I don't, because—I—I know I don't, very much! Good bye."—"If you will wait here half an hour, you can ride back to town with me."—"Oh, I shall be glad to wait. I will sit right by the gate and watch for you. Please don't forget me!"—When I returned, she was sitting by the fence waiting for me. As she handed me the pail she said: "Please be very careful with these. Mr. Wicker said I must not shake them the least bit, or they won't hatch. This is the hen; she's awful ugly, and she bit me twice. Mr. Wicker gave me a letter for Ben. It tells him not to set the hen till night, then put her in a nice box, so she won't run away, and all about it."—And thus she chattered on until we reached her home, where we found Ben anxiously awaiting her.

That was eight years ago. Ben is now a stalwart, business-like young fellow, and Ettie a tall, rosy-cheeked young lady. We have been great friends ever since that bright May morning, and I have closely watched their progress in the poultry business, from that small beginning of thirteen eggs and a borrowed hen, until the present time, and I will give my young readers the story complete. A week before Spotty (that was the name of the hen) hatched her chicks, Ben was able to get about, and fix up a coop for her. There is a picture of it on the next page. While Spotty was sitting, Ettie kept a can of fresh water near her, and fed her every evening just before sunset, so that she was never off the nest more than two minutes at a time. On the twentieth day she wouldn't come off of the nest to eat, and while Ettie stood wondering what could be the matter with her, she heard the "peep," "peep," of a chick, and then she saw a little black head poked out from beneath Spotty's wing. "Oh, you sweet, sweet,—oh ma!" she screamed, "here's a chick! a chick! a chick! do come quick! Oh, Ben! Well, did you ever, ever, ever!" Ben came up with his hands in his pockets, looking very wise and important, and after surveying the new arrival a moment, said he thought it a very fine chick. And he believed it was a hen, too!—"And it will lay eggs!" cried Ettie. "Oh, goody, goody! Now we'll get rich, and ma won't have to wash so much. I could just hug that dear old Spotty!" Late in the afternoon of the following day, Mrs. Brown examined the nest and found eleven nice chicks. They were placed with old Spotty in Ben's coop, and fed three times a day with all the wheat screenings and cold corn-meal mush they could eat. Ben brought them a box of fine gravel from the creek, and kept an old pan filled with fresh water for them to drink. They grew rapidly, and soon began to run away from poor old Spotty and go where they pleased. She fretted and fussed about it so much, that Ben took her back to Mr. Wicker's. As there was only a common three-board fence around the lot, the chicks soon found their way into the garden of Mr. Patrick Doody, who was Mrs. Brown's next neighbor. Though Mr. Doody's fowls ran all over the neighborhood, he did not relish the idea of having other people's fowls intrude upon his domain. Mr. Wicker advised Ben to make his fence chicken-proof, and thus not only keep his own chickens in, but shut out all others. From a gentleman who owned a large wood lot, about two miles from town, Ben obtained permission to cut enough hazel-brush to make the fence. As he cut it, he bound it in bundles convenient for handling, and Mr. Wicker kindly hauled it home for him. Ben worked manfully at his job, and in just three weeks had the fence completed. I give a sketch of a section of it (fig. 2), to show how it was constructed. When the chicks feathered out, he found he had seven hens and four cocks. Before winter came on, he sold three of the cocks for a dollar apiece, and with the money paid Mr. Wicker



ETTIE WAITS FOR A RIDE.

Drawn and Engraved for the American Agriculturist.

for the eggs, and bought enough old lumber to build a little poultry house. I helped him to build it, and figure 3 shows how it looked when completed. It was three and one-half feet high, six feet long, and four feet wide. Two nest boxes were placed in the farther end, and one of the roof boards was fastened with a leather hinge, so that it could be raised to take out the eggs. Ben earned money with which to buy food by carrying small parcels from the stores to people about town. All the merchants liked Ben because he was reliable, and when he wasn't helping his mother, he was almost certain to find a few errands to do. Late in November, one of the pullets began to lay, and before Christmas all the seven were laying steadily. Fresh eggs brought a high price that winter, and he sold them to amount to eleven dollars and twenty cents. The following March and April he sold seven sittings, of thirteen eggs each, for one dollar per sitting. He then bought Spotty from Mr. Wicker, and two more old hens that were always wanting to sit, for sixty cents, and together they raised forty-two chickens. Three of the Plymouth Rocks raised thirty-nine more, which made eighty-one for the season. Fifty-four of them proved to be hens. Of the cocks, seven were sold during the summer and fall for one dollar each. Two had several white feathers on their wings, and were killed for the table. Four of the best were kept in the flock, and the remaining fourteen were placed in a pen by themselves in one corner of the yard. The pullets were well fed, and began to lay late in the fall. The little poultry house was taken down, and a much larger one built in its stead. In return for the good care given them, the pullets laid steadily all winter, and Ben sold sixty-one dollars' worth of eggs. Mr. Wicker advised them to sell all but thirty of the hens as soon as the price of eggs fell below fifteen cents per dozen. So about the middle of March, Ben took a trio, two of the hens, and one of the cocks that he had penned up, and left them at a grocery store to be sold for two dollars and fifty cents. He also entered into an agreement to supply them with all the trios of chickens—until his surplus stock was sold off—and all the sittings of eggs that they could sell for him: they to receive a commission of fifteen per cent on all such sales. The very next day he received the following order:

—OFFICE OF SAMPSON & SMITH,—
Dealers in Groceries, etc., etc.,
G———, Ills., March 17, 1879.

BENJ. BROWN, ESQ.—*Dear Sir:*—Chickens sold and amount placed to your credit. We have orders for five sittings of eggs, three trios of chickens, and two single cocks. Please bring these down to-morrow, and oblige, Yours truly,
SAMPSON & SMITH.

Ben borrowed a shipping coop from one of the stores, placed the chickens in it, and sent them down by express. The eggs he packed in a basket with bran, and took down. Within two weeks they sold all the chickens he had to spare, and fourteen sittings of eggs. The annual interest on

Fig. 1.—SPOTTY'S COOP.

the mortgage was due on the first day of April, and Ben went to the bank to settle with Mr. Eaton. "Good morning, Ben," said that gentleman cheerily, as Ben entered the bank. "How is the poultry business this morning? Quotations indicate a rising market?"—"No, sir; the market is overstocked just now, and prices are down. But I've sold out, and am not interested much."—"Good, Ben, good! You are a thorough business man, I see. What can I do for you?"—"I came in to pay that interest, sir, and I would like to pay the debt, too, if you will allow me."—"You don't mean to say that you have made money enough out of your poultry to pay off that mortgage, do you?" exclaimed Mr. Eaton with surprise.—"Yes, sir, *we* have!" proudly answered Ben.—Just then Mr. Wicker entered, and turning to him, Mr. Eaton said: "Friend Wicker, here is a boy to be proud of—a successful poultryman, only twelve years of age! What do you think of that? I hold a mortgage on his mother's lot, and here he comes to lift it with money of his own earning!"—"Yes," said Mr. Wicker, "'*Ben* and *I*'" are making a success of the poultry business."—"Who's *I*?" asked Mr. Eaton with a surprised look.—"Ben's sister, Ettie. She is as good a poultryman as Ben. The two make a team, and it is really refreshing to see how harmoniously they work together. I lend them my *American Agriculturist* and other papers, and

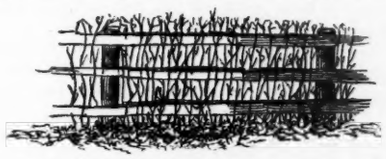


Fig. 2.—BEN'S CHICKEN-PROOF FENCE.

they remember all they read about poultry. But, Ben," he continued, addressing the boy, "you need more room. You can do very well on a small scale where you are now; but you could do much better if you were out of town. If your mother could sell her lot, and buy that little strip of land that lies just over that deep gully in the north-west corner of Mr. Johnson's pasture, it would be of great advantage to you. There is about six acres in the piece, and I think Mr. Johnson would sell it for a reasonable sum on account of that miry gully. With the woods on the north to shelter you, Mr. Johnson's great pasture on the south, no very near neighbors, and only a little over a mile from town, you would be splendidly situated for the poultry business."—"That's what you want," said Mr. Eaton, "and if your mother wishes to sell her lot, I will find her a customer within half an hour. Tell her I will call after bank closes this evening, and see about it."—In the afternoon Mr. Wicker called on Mrs. Brown, and urged her to sell the lot and buy of Mr. Johnson. He had seen that gentleman, and learned that he would take one hundred and seventy-five dollars for the six acres, providing they would put up a fence on his side of the gully. So, when Mr. Eaton called in the evening and offered her five hundred and fifty dollars cash—which was a good price—with the privilege of remaining until she could build a house on the other place, she accepted. Mr. Eaton was a shrewd business man, and knew what he was about. A few weeks after he bought Mrs. Brown's lot, the town board, of which he was a member, purchased twenty acres directly in front of it for a park. Mrs. Brown immediately purchased the six acres of Mr. Johnson. The erection of a house was entrusted to me, and I soon had a very neat little cottage completed for them. And shortly afterward I was employed to construct a poultry house. The new place was named "Hazel Poultry Farm." Turkeys and ducks were added to the stock, and though Ben did not accomplish very much that season, he made good preparation for the next, when they raised five hundred and thirty-two chickens, one hundred and forty-one ducks, and seventy-four turkeys. Acting upon the advice of Mr. Wicker, they devoted their energies wholly to the breeding of pure Plymouth Rock chickens, a fine strain of Bronze turkeys, and pure white ducks. His reason for adopting this course was, that it would draw more attention to the Hazel Poultry Farm, and attract a class of customers, who would willingly pay a good price for eggs and fowls, which they know to be of pure stock. Such has proved to be the case, and it is really surprising how many cocks, trios, and sittings of eggs they annually sell in their own and surrounding towns. One would naturally suppose that the demand would soon be supplied; but, on the contrary, it grows larger every year. They have also contracted to supply a noted stock-breeding firm, that advertises extensively, with Plymouth Rock and Bronze turkey eggs, pairs, and trios. Last year this firm paid them three hundred and sixty-five dollars. They have been awarded the first premiums in their classes at their own county fair, and also at the fairs in several adjoining counties, and the "Hazel Poultry Farm" has thus become well known throughout quite a large section of country. All surplus eggs and fowls are shipped direct to St. Louis instead of being sold at the stores. This course was made necessary by the action of a merchant, who bought their eggs at the market price, then sold them for hatching at a large profit, even sending them to other towns and advertising them as coming direct from the "Hazel Poultry Farm." I rode out to the farm with Ben a short time ago, and will attempt to describe what I saw: A little white cottage, half hidden by tall spruce and dark cedar trees, with honeysuckles and roses climbing over the latticed porch; a smoothly mown lawn, in the centre of which was a bed of bright flowers; a neatly kept fruit and vegetable garden, all inclosed by a woven wire fence. Beyond stood a small barn, containing a sleek, quiet pony, a light spring wagon, and bins of wheat, oats, bran, and corn. Under a tree, a short distance from the barn, lay a dreamy-eyed cow, lazily chewing her cud. Fifty yards from the barn stand four poultry houses with their red roofs, white sides, and glass-covered extensions. Stepping inside the first, I found it as white as white-wash could make it, and the floor swept clean as that of a dwelling. The perches are not over two feet high, and are fastened to the wall with hinges, so that they can be raised while the floor is being swept. On one side, extending the whole length of the building, is a row of clean, white nest-boxes. Queer looking feed troughs are placed here and there, while upon a trestle, two feet high, rests a zinc-lined trough full of clear water. The chickens reach it by means of a slatted inclined plane. It is placed thus to prevent the ducks from fouling it. Near the duck pond (formed by a dam across the gully), is the duck-house, a low, white building, as clean inside as the chicken-house. The duck pond is one hundred and fifty feet long, by twenty feet wide, and it seemed to be alive with ducks of all sizes; the little yellow, woolly fellows splashing, flopping, diving, and squealing, as happy as their snow-white parents. Here, there, and everywhere, all sizes, walking lazily about, wallowing in dust-boxes, lying upon the grass and huddled in little bunches, were the sober-looking, yellow-legged, speckled Plymouth Rocks. Over yonder, scrubbing the ground with the ends of their wings and twisting their broad, fan-like tails from side to side, strutted six great, shining Bronze turkey-cocks; while near them, stood a group of twenty-three turkey-hens of the same color. All the poultry were fat, healthy, and contented, and all indicated thrift and good management.

This was the work of "Ben and I." Their income last year was about eight hundred dollars. Of course, the cost of feed, which was something over one hundred and fifty dollars, came out of

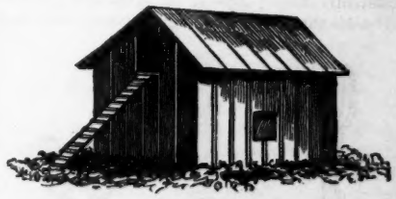


Fig. 3.—BEN'S FIRST POULTRY HOUSE.

this sum. But think of it—a business of eight hundred dollars a year built up by two children! They have eggs to sell when others have none; their fowls are healthy, when those of others are dying with the "cholera;" they have succeeded where older persons have failed. "Can you give me the secret of your success, Ben?" I asked one day.—"I hardly think I can," he replied, blushing. "I study my fowls, learn their wants, and try to supply them. I provide them with plenty of good food and pure water; fine gravel, lime, and dry dust in abundance. I keep their quarters clean and wholesome. That's all, I guess."—He had given me the secret without knowing it!

The Doctor's Talks.

Our fields are in such widely separated parts of the country, that it is hardly possible to say when the corn will be equally advanced in all, but in most localities it will now be in "the tassel," and in "the silk." You know that these are periods which every farmer notes. What are the "Tassel," and the "Silk?" You perhaps know, in a general

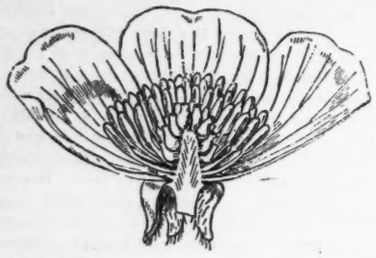


Fig. 1.—BUTTERCUP FLOWER, CUT OPEN.

way, that these, the tassel, and the silk, are concerned in the production of the seed—that is, the kernels of corn—the crop. Before I can describe the part played by the tassel and the silk, I must ask you to follow me, while I tell you about the production of seed in some other flowers. Let us take as an illustration that very common flower, the Buttercup. There are many different kinds of buttercups, and you can easily find one or another, and any one will answer. The best way to examine the flower of the buttercup is, to cut a newly-opened flower right down through the center, as in figure 1. This will need a sharp knife, but it will not be very difficult to do. Having this half of a buttercup flower, I wish you to examine its parts. Holding it by the stem, you will find, next to your hand, some small, green leaves, and next above these, some larger yellow leaves, as you will call them, which make the showy part of the flower. You may stop here, and learn that the green leaves, of which there are five, together form the *calyx*, and that the parts of the calyx are called *sepals*. Next above these, are the broad, bright-yellow, showy parts of the flower; there are five of them, as you will see in a flower that has not been cut. The separate flower leaves are *petals*, and these, together, make up the *corolla*. Now these names, though they may be new to you, are not very difficult to remember. At the lower part of the flower we have the *calyx*, usually green, its parts being *sepals;* next within this, the *corolla*, its parts being *petals*. I wish you to recollect these names, as they apply to most all of our common flowers. Next within the petals, and nearer to the center of the flower, you will find a number of curiously shaped bodies, while in the very center of the flower, placed upon the very end of the flower-stalk, are a number of still differently shaped objects. It is to these two sets of bodies that I wish you to give your special atten-

Fig. 2. A STAMEN.

Fig. 3. PISTIL.

Fig. 4. POLLEN.

tion. If you examine the bodies placed just within the corolla, you will find them shaped as in figure 2. This is a *stamen*. This, and other names, will not be difficult for you to remember, when you know the uses of these parts, and how important they are. They are important not only in the buttercup, but you will find them, in one form or another, in nearly all other plants: so in learning them now, you can apply them to other flowers. Looking at this stamen, figure 2, you will notice that it has two very distinct parts: above, there is a kind of case, or pouch, and below is a sort of stem. This stem is not present in all stamens, but when it is, be it long or short, thick, as in the buttercup, or thin and thread-like, as it often is, it is called the *filament*, while the case at the top is the *anther*. At the very center of the flower, we find (fig. 1) a cluster of bodies of which a separate one is shown at figure 3. This we will call a *pistil*. You will observe that it is swollen below, then there is a sort of stalk, at the very top of which is a roughened portion. Now, I wish you to examine this pistil very closely. In cutting the flower, you may have cut through one or more of these pistils; if not, try again, and you will be quite sure to cut through the swollen, lower portion of one or more, and if you have a good magnifier, you will see within its cavity, a little, green, pulpy body, as in figure 3. Now here are just a few more names for you to remember. The little, green, pulpy body is an *ovule;* the enlarged part of the pistil, which contains it, is the *ovary;* the stem-like portion, above the ovary, is the *style*, and the very top of the pistil, is the *stigma*. Now, what does all this mean? In time, the showy parts of the buttercup flower will fall away, all but the head of pistils, and these will ripen into little, one-seeded pods. The little green, pulpy ovule, in time becomes a seed, which, if it falls upon the soil, will give birth to a new plant. But before this ovule can become a seed, something very curious must happen to it. We must now go back to the stamen, figure 2. When this is quite ripe, the case at the top, the anther, bursts open and sheds a fine,

Fig. 5.—FLOWERS OF TASSEL.

and usually yellow, powder. You must have noticed this in lilies, and other large flowers. If magnified under a strong microscope, this powder, the name for which is *pollen*, is seen to consist of well marked grains, in some plants very beautiful. The pollen of the buttercup is shown in figure 4. When the pollen falls upon the top of the pistil, the stigma, a sort of growth takes place, and something from it finally reaches the ovule. Exactly what takes place there, is not certainly known, but unless something, from the pollen grain, reaches the ovule, no seed will be formed. This act, the influence of the pollen upon the ovule, is called *fertilization*, and unless this takes place, the pistil will fall away. When this occurs, the ovule grows to form a seed, and the pistil itself increases in size and forms a *fruit* of some kind. What takes place in the buttercup, occurs, in one form or another, with all our flowering plants. But it is wonderfully varied. In the buttercup, both stamens and pistils are in the same flower. In Indian corn, these are separated, the stamens being in one set of flowers, and the pistils in another. Whatever the variety of corn, when the tassel appears, its upward growth ceases. What is the tassel? If you examine it closely, you will find it to be a branching cluster, bearing on its branches very simple, and chaff-like flowers, like those in figure 5. These flowers bear stamens only, which have long and slender, thread-like filaments. Where are the pistils? you will ask. Soon after the tassel appears, you will find, in the axils of the leaves, where the leaf joins the stalk, a leafy cluster, from the center of which will protrude a young ear, bearing a mass of what is popularly known as "Silk." What is this silk? You know that it comes from that which will, in time, become an ear of corn. To understand about the silk, you must sacrifice that which would be an ear of corn. Take a very young ear, upon which the silk is still fresh, and carefully strip away the leaves, usually called "husks," or "shucks," which surround it. As you do this, you will notice that the outer leaves, or husks, are green, like the other leaves, and as you get to the ear itself, these husks are very thin, white, and delicate. After you have carefully stripped off the last thin husks, you will see, as in figure 6, that each fine thread starts at something which may, in time, be a kernel of corn, and goes along until, at the very tip of the ear, it unites with many others to make up the silk. Now to compare this with what we have learned from the buttercup. In that, there were stamens and pistils both in the same flower. In the Indian corn, these parts are in different flowers. The stamens here are in the flowers of the tassel. The pistils are in separate flowers, crowded together upon a thick stem (the cob). These flowers are so unlike those with which you are familiar, that I will say nothing about them now, save that they contain a single ovule, which in time will form a seed, a kernel of corn. The pistils of the buttercup have but a short style, the pistils of the corn-flowers have each a very long and slender style. If you have a strong magnifier, you can examine a thread of the silk, and will find it to be split in halves, for some distance below the tip, and that each half is furnished with minute hairs. These very small hairs are to aid in catching the pollen, as it falls from the stamens, in the flowers of the tassels. The pollen produced by the tassel falls upon the silk, the pistils below, the ovules, are fertilized, and the seed (the kernels) ripen. This is a general outline. I hope to say more about our cornfield, another month. THE DOCTOR.

Fig. 6.—CORN IN THE SILK.

W. C. BRYANT.

July Rebus.—Steady gains increase wealth more than watching and waiting for something.

Improvement of the Strawberry.

E. P. ROE.

I have a dim recollection of catalogues sent out by one E. P. Roe, in which certain new varieties were spoken of in a way that might lead the public to look for a revolution in small-fruit culture. You may have observed, however, that the "Bidwell" strawberry has not superseded all other varieties, and that the "Pride-of-the-Hudson" raspberry, has not driven the "Antwerp" and "Cuthbert" from our markets or gardens. In my "green and salad days" I thought that varieties which proved so superb on my own grounds, would do as well elsewhere; but I had much to learn. There has been a rage for novelties, a disposition to think that the past would be utterly eclipsed. There are gray-headed men here. Did they never eat large, beautiful strawberries in their youth? We should be slow in discarding old and well tested varieties. Their apparent deterioration usually results from bad treatment and careless propagation. This tendency to part with the good qualities which once made a variety famous, should be checked, and a process of higher development entered upon. I think it can be done in this simple way. I am referring to old standard kinds. For instance, take a bed of Wilson's seedling, select a plant that for some reason exhibits all the earliest and best Wilson characteristics. In every garden or field there are such plants that are head and shoulders above the others. Clear a space around such plants, and propagate from them. Repeat the process with the best children of these progenitors. We all know how well-known breeds in live stock, and old varieties of vegetables are developed and improved by a careful and continued selection and propagation from the best. Apply this principle to the standard strawberries, and a new competitor must be great indeed, to rival them. In the future as in the past, success in the development of the strawberry will lie in the direction of our native species, *Fragaria Virginiana*. We have superb foreign kinds, like "Triomphe de Gand" and "Jucunda," but they require the highest culture, and succeed only in certain localities. We should employ the most vigorous strains of our native stock in developing new varieties, chosing hardy mothers, or pistillate varieties, like the old "Champion." Instead of petting and stimulating new seedlings, I should put them in poor, thin soil, and then discard all except those which persist in thriving under unfavorable conditions. If on sandy or gravelly soil a new variety maintains vigor and productiveness of large, fine-flavored fruit, we should have good reason to believe that it would succeed in varied soils and climates, when sent out into the rough-and-tumble of the world.

Fertilization of the Flowers of the Strawberry.

A. S. FULLER.

It is a fact very well known to all botanists and others who have studied the strawberry in its natural state, that its flowers are bi-sexual, or perfect, but it was found that varieties of the American species were often imperfect, there being pistillate as well as perfect varieties among them. Among the first cultivated of these pistillate varieties, was "Hovey's Seedling." Its flowers contained only pistils, the stamens having aborted, were absent entirely. This variety would not produce fruit, unless a perfect flowering variety was planted near by, showing that the influence of the pollen extended beyond the seed, for the fleshy receptacle which holds the seeds would not be developed unless the pistils were fertilized. If the flowers were not fertilized, there would be no fruit, neither would the stem which supports the flowers of the fruit, perfect itself or grow. This being settled, the next question that arises is, whether the pollen has any appreciable effect on the form, flavor, or color of the fertilized berry. That is, will the pollen from a large variety, have any influence in increasing the size of a small one? The influence of the pollen may be too feeble to be discovered in some instances, and then we may not be able to tell whether the cover of the seed on a strawberry has been changed by the influence of the pollen, as shown in the cross-fertilization of corn; still, this is no proof that such an influence has been discovered in the strawberry. It is now more than a quarter of a century since I experimented with the strawberry for the purpose of determining, if possible, the influence of the pollen of one variety upon another, and as the "Hovey" and "Scarlet Magnate" were the best of the pistillates, these two were selected for the purpose. I became convinced at that time, that the "Hovey," in particular, was greatly influenced by the character of the staminate variety used in fertilizing its flowers, and in 1864 I briefly referred to the subject in my "Fruit Culturist," on page 45, with which you are all probably familiar.

If the effect of the pollen reaches no further than the seeds, why is not the fruit receptacle produced without them? But we find that wherever the pistils are not fertilized, the receptacle also fails. Or, if a portion only is supplied with pollen, then the receptacle is deformed accordingly. Remove one, two, or more pistils before they are fertilized, and the berry just at that point fails to enlarge, or come to maturity. No seeds, no berry, is the rule. If the strawberry seed were large enough to be readily examined, we should probably see a difference in color and form, just as we notice in mixed variety of Indian corn. In the latter, we can see that the influence of cross-fertilization extends further than the seed, because its receptacle is often changed beneath the kernel, to a color similar to that of the variety which produced the pollen.

Pomologists have noted many instances of what appeared to be the influence of the pollen of one variety of apple upon another, when the two were growing near together, or the branches entwined. Apples that were naturally smooth, had been found covered with russet when growing near Russet varieties, while white varieties have been covered with blush or reddish tints, under similar circumstances. It is difficult to account for these changes upon any other hypothesis than the influence of the pollen. It may be asked, why this does not occur every year, instead of at long intervals. While it may be difficult to give a correct answer, we think that the reason is, that under ordinary circumstances, apple blossoms are self-fertilizing; but occasionally something interferes with this operation, and such has immature or partial development of the stamens, thereby affording an opportunity for the pollen from some other tree to reach the pistils at the proper moment for fertilization. In covering plants with netting, to prevent the visitation of bees and other insects, the covering materials prevented as often self-fertilization, as it keeps the plants rigid. Movement by the wind, etc., is a great aid in scattering the pollen from the stamens of the different flowers. This theory, which has become so popular of late, in regard to the great work of insects in cross-fertilizing to flowers, and aiding in the protection of seeds, is a very pretty one to talk about, and it contains just a little truth, or perhaps enough to support an idea, but not enough upon which to found a theory. Sometimes, flowers are infertile, and the reason for it it would be difficult to determine. For instance, in my neighborhood there is a long row of cherry trees; all are exceedingly fruitful but one—this tree is now over twenty-five years old, and has never been known to produce more than three or four cherries in a season, although it blossoms as full as others in the same row. I have examined these flowers carefully, and under the microscope, and have not been able to detect any deformity in the stamens or pistils, consequently I am at a loss to know why this tree is unproductive. Now, who can explain it? I cannot.

DEEP PLOWING.—Deep plowing is not always beneficial, in fact, it is often quite the opposite. E. H. Moran, of Cherokee Co., Texas, presents this problem: "Would light, sandy land, with clay subsoil, be benefited by deep plowing, without adding manure?" If the clay sub-soil does not lie too deep, and the land has been sometime in cultivation, so that plant-food has leached through the surface soil, and has been arrested and held by the clay, the benefit would be marked, if very little were to be taken up at a time. The mistake in deep plowing is, usually in putting the plow down too deep at once. As a rule, it does not pay to deepen very sandy land, unless it can also be enriched; but clay is always beneficial to sandy land, and if it can be raised to the surface and gradually mixed with the sand, it will do good. A sub-soil, which has become hard, and to a great extent impervious to air and moisture, often contains salts of iron, and perhaps organic acids, which are poisonous to plants: hence, it should be raised by the plow to the surface, not more than an inch at a time, and this is best done in the autumn, so that it may be exposed on the surface all winter.

Cultivation of Strawberries.

CHAS. A. GREEN, ROCHESTER, N. Y.

Last year we grew over thousand bushels of strawberries, on about seven and a quarter acres of land. Strawberry growing is now almost as well understood as potato growing or corn growing. The man who makes money out of strawberry growing, is the man who uses improved methods and keeps his field clean. The first thing necessary is, to have a good soil, deeply cultivated, and highly manured. An important point to decide is, where to market this fruit. Of late years, the Southern strawberries have entirely revolutionized our methods. In my boyhood, when we first began, we picked our berries in the first week of June. Now berries come from the South, all the way from the first of February to the first of June. It is singular that the Southern people have found only two varieties of the strawberry that they can grow. One is the old "Wilson," which was the first field strawberry, and the other is the "Neunan" (also called "Charleston").

Everybody knows that the "Wilson," grown on a poor soil, is a very sour berry, but it will bear transportation. The strawberry grower here must decide what varieties he is to grow, and to what point he will ship them. After experience with every new variety, and after spending a great deal of money in trying all the new kinds, for eleven or twelve years, I settled down to growing the "Charles Downing." It is the most profitable berry. After trying all the varieties, the "Charles Downing" is my favorite. You can get fifty and sixty cents a quart for the "Sharpless;" if you take a crate, and come to some place on Broadway, you can do that, but when you grow for a home market, you cannot get that. You have to grow strawberries to pay you at the market price, and it is nonsense to state that you can get fifty and sixty cents per quart for a crop. You cannot do it.

The Change at the Farmers' Club.

A great change has come over the Farmers' Club of the American Institute. Those who have only known the club as a place where bores talked upon subjects of which they knew nothing, for the sake of having their names in the papers, and as a resort for the owners of very dull axes, which they ground for the benefit of whom it may concern, would be surprised at the contrast between the present and the former condition of the club. Under the efficient direction of its present presiding officer, Dr. F. M. Hexamer, bores and axe-grinders step to the rear, and new men, with fresh experience and new thoughts, come to the front; the meetings are now interesting and useful, and in marked contrast to their dullness in former times. This was especially noticeable at a recent meeting, when strawberries and their culture were discussed. Several of the editorial corps of the *American Agriculturist* attended the meeting, and contributed their share to the general fund of information.

Animal Ailments.

PREVENTION IS BETTER THAN CURE.—Nine-tenths of the miseries suffered by the domestic animals are preventable. Horses suffer exceedingly from the mistakes of their owners. The feet suffer most from disease, the eyes next, the lungs after the eyes; and the feeding produces most of the intestinal disorders. Bad shoeing causes almost every prevalent lameness; even spavins and ringbones are due to bad shoeing, and the use of calks, which throw the foot out of a proper level, and cause straining of the joints and ligaments. The cutting away of the frog exposes the tender interior of the foot to bruises, and causes disease. Foul stables with pungent odors, which cause the harness to rot, and destroy the varnish upon carriages, may well be expected to injure the eyes and the lungs and air passages; and over feeding, or irregular feeding and watering, produce indigestion and colic, and encourage the multiplication of worms. It is of far greater importance to avoid all these causes of trouble, than to seek remedies for them.

MUCOUS DUNG indicates irritation of the bowels. Laxative feeding, and a dose of a pint of raw linseed oil, repeated the third day, will usually remove this trouble.

DIARRHŒA IN YOUNG CHICKS.—Mrs. B., Potter Co., Pa. The light yellow, sticky discharge from young chicks, is the fatal result of over-feeding. It is never cured. A chick in its first week should have less than half a teaspoonful of food in a day, and never enough at one time to fill the crop so that it protrudes.

STIFF JOINTS.—J. A., Custer Co., Dak., has a colt whose joints are so stiff, that the animal walks on his toes. The remedy for this trouble, which is caused by sprain of the back tendons, and is often hereditary, is to apply active liniment to the joint and limb above the fetlock, with gentle friction, twice a day. Let the colt run at pasture, or give it a roomy stall, or better, a loose box.

GRUBS IN THE BACKS OF CATTLE.—J. B. Gage, Door Co., Wis. The grubs found in the backs of cattle in the spring, are larvæ of the cattle gad-fly. These flies sting the cattle in the late summer, depositing an egg at each sting in the skin. The grub remains all the winter, and lives on the pus produced by the irritation. Cattle do do not seem to mind these grubs much, itching on the backs being the most of the trouble occasioned by them. There is no cure and no preventive, but the impracticable one of keeping cattle indoors in the summer.

SPAVINS.—W. R. B., Akron, Ohio. Spavins are frequently caused by concussions of the joint, when a horse is driven over a hard, rough road, or by sprains, often induced by throwing the foot out of balance by high heel calks. Spavins are often inherited. They consist of inflammation of the membrane covering the bones of the hock joint, by which an enlarged deposit of bony matter is produced. This deposit cannot be removed, but may be stopped by the use of cold water bandages to reduce the inflammation, followed by blisters or strong liniment.

COUGH IN CALVES.—J. Adams, Greene Co., N. Y. Calves and several other young animals, lambs especially, are troubled as soon as they go upon grass, with irritation of the lungs and air passages, which produces a distressing cough and emaciation. This cough is due to the presence of thread worms in the air passages and lungs, and the accumulation of mucus, which interferes with the breathing. Small, repeated doses of turpentine, given in milk or in sweet oil, are usually effective in removing the parasites, or allaying the irritation.

TUMOR OF NECK.—J. J. Lucas, Darlington Co., S. C., has a registered Jersey cow, twelve years old, of great value. "Some weeks ago perceived a tumor upon the side of the neck. This now extends from her right shoulder to her head, and in fact pretty well covers her neck." He asks us: "Is there any application that will remove this?" Nothing is known of the nature of the tumor. Presumably it is benign and not malignant, judging from its rapid growth, as well as from its great size. No external applications can be of any service, and the knife in the hands of a skilful operator, can be the only remedy. Possibly the tumor might cease to grow; in such case, if the animal is used only for breeding purposes, it might be well to avoid the operation.

TO KEEP OFF FLIES.—F. E. L., Ontario, Canada. There are several methods in use to lessen the annoyance to horses by flies. All of them depend upon the use of some strong but volatile odor, applied in a wash upon the skin. A decoction of onions or of walnut leaves, or of pennyroyal, have been used with good effect; but a better one is a solution of carbolic soap, sponged over the skin and left to dry upon it. We have found the best remedy to be Persian insect powder, steeped in hot water, and the cool decoction sponged over the skin; or dusting the powder over the skin of the animals, or about the stables, will keep off the flies. If this is done early in the evening, and the windows are provided with a wire netting, the patient animals can enjoy a good night's rest.

A SWELLING ON A COW'S KNEE.—M. D. Beach, Conn. Stanchions often produce serious injuries to cows that are kept in them, by reason of their unyielding character. The cows become bruised on the jaws and the neck, and also on the knees, through pressure or bruises caused in lying down or rising, when the animal is too far forward or backward to move easily. Swellings on the knees are frequently produced in this way, and if not relieved, may result in an inflamed joint. The animal should be let out of the stanchion, and rested in a loose stall; the rest will probably remove the trouble: if not, some active, stimulating liniment will probably effect a cure.

HEAVES is caused by various ailments, as irritation of the air passages and lungs by dusty hay, by indigestion, by over driving, and by disease of the lungs or the heart. But it is nearly always caused by dusty food, or by over feeding. It may be cured if it has not produced a permanent thickening of the air passages, and may usually be relieved by a change of food. The hay should be cut and wetted, and no dry food given. The ration should not be bulky, but be given in small quantities. Two pounds of cut hay, with three pounds of meal mixed through it, and a sprinkling of salt, is an excellent feed for a horse with heaves. If oats are given, they should be scalded and fed moist. A few potatoes occasionally, are also serviceable. Sunflower seeds, a quart or so daily, have been found useful.

SWEENY is the popular name for atrophy, or shrinkage of the large muscle of the shoulder. It is not a disease, but is the result of a lameness, which may exist in the foot, leg, or shoulder joint. The lameness causes the animal to avoid using this shoulder, and as the growth of the muscular fibres depends upon the action of the muscle, when this is inactive it stops growing and wastes away. The seat of the lameness must be found by careful examination, and proper treatment given to the trouble in the locality where it exists. This treatment of course depends upon the nature of the particular trouble. A collar that is too large may easily produce the disturbance which results in the wasting of the muscle, by injuring the point of the shoulder, and producing inflammation in it. Rest from work, and brisk rubbing over the shoulder muscle with some simple liniment, will gradually restore the part to its original fullness.

VETERINARY BOOKS.—H. F. C., Butte Co., Cal. A veterinary work is of very little use to an inexperienced reader, because it is impossible to indicate clearly the nature of the disease by the apparent symptoms. A great fault in nearly all the popular veterinary books, is the want of a table of symptoms, so arranged that an owner of a sick animal can refer to it, and so get some idea of the nature of the disease, and its right treatment. Dr. Dadd's "Cattle Doctor," is the only work in popular use, which has such an index of symptoms, and it is otherwise a useful book, on account of its simplicity, and plainly given directions for the management of animals, both in health and disease. Clater's "Cattle Doctor," is a very good English work; Prof. Law's "Veterinary Adviser," is an excellent American work for an intelligent reader, who will take the trouble to study it carefully, and make his own tables and indexes, as the symptoms of the various diseases and the treatment, are fully given under the different heads, and only require tabulation.

COLD AND HOT HORNS.—Subscriber, Sussex Co., N. J. The horns themselves are insensible matter, formed of fibrous tissue resembling matted and felted hair firmly compressed. But they serve the purpose of covering exceedingly sensitive parts of the skull, called the horn cores. These are lined with membranes which are provided with nerves and blood vessels, and are made up of a spongy mass of cells. When a cow is in poor health, the circulation of blood is disturbed, and there is a flow either to or from the head. In the first case there is congestion, and the head is hot; the horns are then warm or hot in sympathy with the head. In the latter case the head is cool and the horns cold. The horns are not diseased. By neglect the inflamed membranes may suppurrate, and the pus confined in the cells may gather there, and cause much pain; or they may slough away. In the one case to bore the horns may give an outlet to the pus, and afford relief, and in the other the horns may be hollow from the absorption of the horn cores. This is what is known popularly as hollow horn, but it is not a disease of the horns. The remedy is to restore the animal to good health by good feeding or proper attention.

RETENTION OF THE AFTER-BIRTH.—H. F. C., Butte Co., Cal.—The retention of the fœtal membranes is always an indication of weakness, either nervous or muscular. Sometimes the *os uteri* closes rapidly after the calf is born, and holds the membranes so firmly, that although they are loosened from the cotyledons, yet they can not escape. The safest treatment is to insert the hand, well oiled, with the first and second fingers extended, and the others, with the thumb, bent under the palm. The *os* is greatly dilated, and if need be, some laudanum or tobacco water may be injected, for the purpose of relaxing the muscles. When the hand is introduced, the points of attachment are separated one by one, until the whole of the membranes are loosened. In ordinary cases, it has been found useful to give a half ounce of carbonate of potash, dissolved in water, and added to an infusion of one ounce of savin leaves, in a pint of hot water. This trouble often becomes hereditary, and when a cow once suffers in this way, it is repeated with every calf. It is therefore wise to avoid this trouble by keeping young cows in a healthful condition, previous to calving.

LAME PIGS.—Subscriber, Oakland Co., Mich., writes us: "My pigs are troubled with lameness of the hind-quarters, which makes them drag their legs about uselessly. They still eat their feed and do not seem to suffer. What is the cause?"—This disease is very common, and is the result of the equally common over-feeding of the pigs. As a rule, pigs are fed all they will eat—often of sour food. No other animals are so unwisely treated. The consequence is indigestion, or mal-nutrition; the blood is loaded with impurities which the kidneys are unable to carry off, and the effect is to cause what is known as spinal meningitis, or inflammation of the covering of the spinal cord. This paralyzes the nerves of motion of the hind limbs. Usually spare feeding for some time sets things right, but it is well to assist by applying a mustard plaster or turpentine to the loins, and over the spine, after hot-water fomentation.

AVOIDABLE AILMENTS.—If machines made of cast-iron, and steel, and brass, wear out, and get out of order, we can not wonder that our animals should do the same, although they have a natural ability to repair themselves. But, as a rule, owners of machines take more care of them, than owners of animals do of the latter. The consequence is, that horses and cows are subject to numerous ailments which might be prevented. Farmers and dairymen should make a study of the care of animals, observing constantly, what dangers are imminent, and what accidents are most likely to occur, and keep as close a watch upon their live stock, as they do over their own safety. An animal is very much like a human being, in regard to injury from accidents, neglect, over feeding, and general carelessness. There are some farmers who have grown old in their business, who never had an accident befall an animal, never had a sick beast, and never lost one by death. And the reason is that they were on the constant watch to avoid mistakes, and used effective precautions to escape accidents of all kinds.

The Model Cook; or, Things Good to Eat, and How to Make Them. By Elmer Lynnde.—New York: O. Judd Co., David W. Judd, Pres't.—Cook books are numerous, but there are cook books, and cook books. When a lady, ambitious to appear as an author, makes a cook book by selecting and copying from books already in existence, she multiplies books, without adding to our knowledge, and is not to be encouraged or commended. If, on the other hand, a lady has numerous well-tested recipes, and gives us these, with those her friends may contribute, in a neat volume, she does housekeepers a real service. Of such books, of which the "Model Cook" is an example, we can hardly have too many. The author of the "Model Cook" shows her practical turn of mind by dedicating the work to: "My daughter, and the other little girls of the land." As a nation, we are laughed at for our cookery, and that there is an abundance of bad—very bad—cooking, one need not travel far to learn. On the other hand, there are families which have been, for generations, noted for their good living; which, of course, largely depends upon good cooking. In such families, bread-making is a fine art, and as in this, so in everything else. Each dish is the best of its kind, merely because some one of the family is not above giving personal attention to preparing that which is to be eaten. In the present work, a lady, evidently accustomed to good living, gives her recipes; these are of such a character, that if intelligently followed, can not fail to lead to satisfactory results. The work is remarkably concise: for example under soups; instead of giving every possible kind of soup, the author contents herself with fifteen choice kinds. The same discriminating judgment is found throughout the work. While most of the dishes are for persons in health and with good digestion, the invalids are not overlooked. A number of recipes for preparing delicate dishes for the sick are given. We are quite sure, that the "Model Cook," on account of the great variety and choice quality of its recipes, will be welcomed by all good housekeepers, and of especial use to novices. Price, post-paid, $1.00.

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See Public Sale of High Grade Fertilizers, on page 344. The Excelsior Fertilizer Co., of Alliance, O., make excellent fertilizers. There are none better made.

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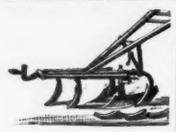

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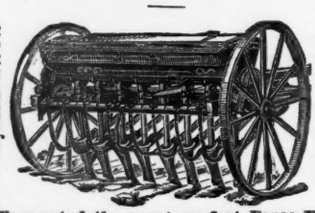

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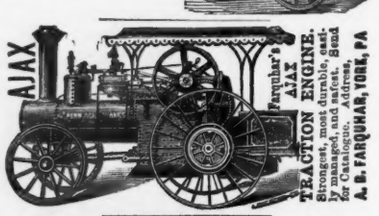
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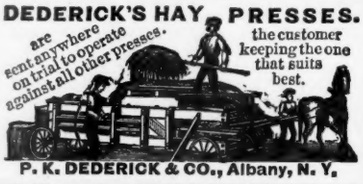

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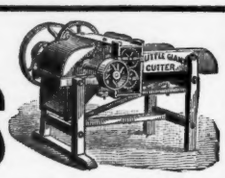

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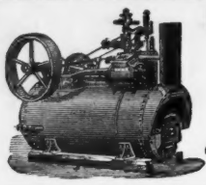

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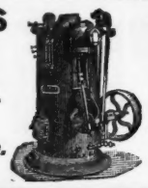

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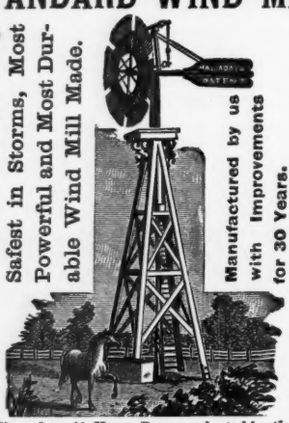

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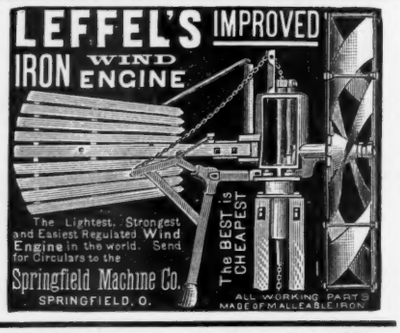
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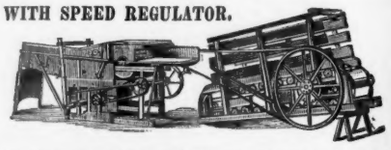

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The "Health Magazine" says: "The *American Agriculturist*, in exposing frauds, is certainly commendable. It is doing excellent work in this direction, and we are often surprised to find how nearly we have ourselves been bitten."

The "Ozone Tramp" in Oregon.

Mr. William V. Baltimore, writes us from Linn Co., Oregon, under date June 22: "I am sorry to see that some one is trying to injure the *American Agriculturist*, for it has been a blessing to me; before I commenced taking it, I was duped out of over thirty dollars by a tree peddler. Since taking it, I was visited by an 'Ozone tramp,' but had read its history in your valuable paper, so was all right; but some of my neighbors bought, and the result was, they lost all the fruit they put up. This is only one of many that has come along, since being posted on humbugs, for which I for one am very much obliged."

NEVER EMPLOY A PHYSICIAN WHO ADVERTISES HIS CURES, OR ANYTHING BEYOND THE FACT THAT HE IS A PHYSICIAN.

"When Found, Make a Note of it,"

was good old Capt. Cuttle's advice. Some chaps have found an oat, and they have gone and made medicine out of it. Yes, actually, one Dr. Buckland, has went and gone and found something in oats—Scotch oats, mind yo—which no one ever found before. The great virtue claimed for this essence of oats, is that it is a "special rejuvenator," which must be a very handy thing to have in the house. The special circular tells us, that there is not a "schoolboy in the land who is not familiar with the invigorating," etc., power of oats, as given to horses. Hence, when a physician in Connecticut (the land that has the reputation of having discovered wooden nutmegs and cucumber seeds), discovered the virtues of a "Tincture of Oats," it was a great discovery. Were it not that nothing is ever given in these columns that may not be read aloud in the family circle, we might quote some very funny things from this Essence of Oats circular." "Oats," said Doctor Johnson in his dictionary—"A food for men in Scotland, and for horses in England."—But the Scotch-hating doctor never thought of the oats as medicine. We are told by this circular: "Avena satira, is the purely Latin or medical name of Essence of Oats," which is most decidedly a—well, not true. *Avena satira*, is simply the botanical, or scientific name for the oat plant, without any reference to any essence, syrup, tincture, or any other nonsensical preparation that any quacks may make from it. We are told that one chemist has discovered in oats, "that subtle and peculiar principle, known as *Avenine*, that has thus far baffled every effort to further analyze it." Before we swallow this, we should like to know the names of the chemists whose "every effort" has been "baffled." We are told that it is this substance which does such wonderful things. But these essence makers corner it, for we read that: "by our improved processes of steaming to soften the outer husk, and prolonged percolation and compression after soft grinding, and finally essential distillation, that every particle of the active principle is removed." We should say so. It must be a hard-hearted "active principle," that would resist "improved processes of steaming," "percolation," "compression," "soft grinding," and "finally essential distillation," that would not be "removed." Now, after our oat-meal has been shown to contain a wonderful principle, let some one go for our flap-jacks, and show that the buckwheat, so dear to the native American, contains a wonderful principle—call it "Flapjackine," claim that it will restore everything, sell it in pint bottles, like this oat stuff—for five dollars—and make a fortune. We who have watched all these quack medicines, from Swaim's Panacea of fifty years ago, through Brandreth's Pills, and old Doctor Jacob Townsend's Sarsaparilla, up to the latest nostrum, know that each year brings its wonderful cure-all, which enjoys a brief popularity, and then disappears. Essence of Oats comes to the surface now—when the next pernicious nostrum comes, we will give our readers timely notice.

Making Money Easily.

E. Carter, one of our numerous Australian subscribers, sends us a clipping from an Australian paper, containing an advertisement of a "Co." in Maine, U. S. A. This advertisement sets forth, that one pound sterling to four pounds sterling per day, can be made by persons of either sex—etc., etc. Mr. C. inquires about the parties who advertise, and wishes to know about the matter. The "Co." who advertise in the Australian journal, is one of several concerns located in New England and other towns, who are in, what we call, the variety business. Their catalogues are wonderful compilations of trash. They offer bogus jewelry in great variety, all sorts of tricks and games, books of demoralizing tendencies, such as "marriage guides," books of "magic," books of secrets, telling how to do all sorts of impossible things, including the transmutation of base metals into gold. The money to be made is from selling the nonsensical wares, which these companies offer in their catalogues, and which are best described by the collective name of—trash. Our advice to our many subscribers in Australia, as well as those elsewhere, is—let them all alone. Even if one can make money by peddling the articles, he will do it by selling worthless stuff to the injury of those whom he can induce to buy.

The Freight Confidence Game.

Mr. "J. A.," Burlington, Iowa, gives us an account of a game practised at the R. R. depots of that city, and also at the steamboat landings. Similar tricks are played elsewhere, especially at the west. Mr. A. says: "A flashily dressed young man, makes the acquaintance of some honest looking person, whom he may meet, and think a suitable subject for his little scheme. They engage in conversation at the depot or wharf, and while the two are talking, a second young man, dressed as a railroad employe, or perhaps in a plain working suit, comes up with an express book, or a railroad freight book, and asks for the payment of freight due on an invoice of goods, which the first young man has in the freight house. Of course, the first young man does not have his money with him, as it is all in his trunk in the baggage room. He then asks the second young man if he can wait until he has time to go to his trunk and get his money. He is told that it is time to load the goods, and that if there is any delay, they can not be shipped until the next day. As a natural consequence, this throws the owner of the goods into a "state of mind," and finally, he asks his newly made friend if it would be asking too much of him to pay the bill, and then go with him to his trunk, where he would be repaid. It would be such a favor, for if the goods lay over, on this account there will be a bill of storage, beside the delay in shipping. Of course, the new friend pays the money, and he also gets—left. Almost every week there are several of these games played here, generally on passengers, at either the railroad, or at the steamboat depot. Warnings against these confidence men, are being published constantly in the newspapers, but still it is the same old story." Moral—Do not make acquaintances too readily in travelling.

Loan Companies.

Fraudulent loan companies are very numerous just now. One of them, which has been operating in the South, has come to grief, and has been denounced by the post-office authorities as a fraudulent concern. The son of an ex-Congressman has recently been arrested at Atlanta, Ga., on the charge of being connected with this company, which its name is "The English-American Loan Company." Circulars of this bogus campany are still being extensively circulated in the South.

THE WAY THEY OPERATE.

Circulars are sent out, and advertisements are inserted in respectable papers, offering loans at low rates of interest, and on very easy terms. Numerous farmers apply for loans. The terms are, ten dollars as an application and registration fee, which is to be deducted from the first half year's interest. If a victim sends his ten dollars, he is defrauded to that extent. He never gets his loan, and never gets his money back again, because he never has a chance to pay any interest to deduct it from.

NEVER EMPLOY A PHYSICIAN WHO ADVERTISES HIS CURES, OR ANYTHING BEYOND THE FACT THAT HE IS A PHYSICIAN.

"A Grand Secret."

A chap in Novia Scotia has a "secret," which he styles "grand," as it proposes to enable one to get "one hundred worth of books for nothing." All you have to do, is to sit down, (no stand-up desks allowed) and write a letter of information to the publisher, which will bring you in return a book worth from two to five dollars. No capital is required except a few cents for "postage." At first sight it would appear, that one who can get books by merely writing "a letter of information," that will bring books thus readily, must do a fearful amount of lying. We publish books to some extent. We would like to have a holder of this "secret" "sit down" or stand up, and write us a "letter of information," just to see how many books he would get! We are told that this is "The Chance of a Lifetime!"—We should say so!

NEVER EMPLOY A PHYSICIAN WHO ADVERTISES HIS CURES, OR ANYTHING BEYOND THE FACT THAT HE IS A PHYSICIAN.

The Seed Swindlers.

Last fall, a farmer-looking man appeared in the West, pretending to have come from Pennsylvania. He had samples of very fine looking wheat and oats, which he said he had raised on his farm, and would sell at first hand very cheap. He sold a good deal of the seed to many farmers. He took orders for more than one thousand dollars worth of seeds in one county in Michigan. Now the crops are looked for in vain; the seed failed in every case, and the farmers are wanting to see that farmer-looking man once more. They have business with him.

We Have Done It.

Wm. H. E., of Burlington, Ind., wishes us to put the officers of the law upon the track of one Ezra Hoyt, in Bleecker St., who is writing people in the vicinity of Burlington, offering to sell them the "Queer" in one, two, five, and ten dollar notes. Will all of our subscribers forward us the names of all other dealers in counterfeit money in this city, whose letters and circulars reach them. We shall do our utmost to have the police authorities hunt them down, in the hope of bringing them to justice.

"Social Game Bonds."

C. F. Schmidt & Co. (otherwise Smith), knowing it to be illegal to make use of the U. S. mails to distribute advertisements of their Hamburg Lottery, try to evade the law by sending out a circular pretending to offer "European Premium Government bonds." The circular is headed: "How Do We Get Rich?" or, "How to Become Rich!" The circular itself is really a setting forth of the Hamburg Lottery, with an attempt at concealment, by calling the lottery tickets, bonds, and "Social Game Bonds," whatever they may be. Now that the authorities have put an end to the home lotteries, we hope that they may attend to this Hamburg affair.

Bogus Diamonds.

Jerome A. Salisbury, who gives his name, but does not give his residence on his business letters, claims to have a stone "to be found with no other importer in the country." This is such a remarkable stone that "not one diamond expert in ten can tell it from a real stone." In other words, "it is faultless." In order to save the feelings of those who would wear bogus diamonds, while others think them the "Simon pure," there are provisions by which the purchase may be made and the goods delivered "under the most profound secrecy." This dealer is honest, at all events. He does not pretend that his diamonds are real. Another concern pretends to sell stones, the surface of which is coated with a layer of real diamond, deposited "by electricity." Such claims are fraudulent. Electricity can do many wonderful things, but it cannot cover a stone with a coating of real diamond. In order to do this, the diamond must be in solution, and no one has yet been able to dissolve the diamond. Stones claimed to be coated with diamond, are bogus. But why buy anything that is not what it pretends to be?

The Sand Mountain Scheme.

Sand Mountain is in Alabama. In the wilds of this mountain, W. W. & I. B. Foudren put up a job, which was found out by U. S. P. O. Inspector Baird, of Chattanooga. Conspicuous advertisements, in Northern daily papers, have of late appeared, offering one hundred dollars in greenbacks for ten. Thousands of letters were sent to the parties, from all parts of the country, with money enclosed, asking for the counterfeit greenbacks. By means of a decoy letter the swindlers were caught, and are now in jail. But how very uncomfortable must be the writers of the two thousand and more letters which were captured in the Chattanooga Post office, and who are equally guilty in the eye of the law with the principals in the swindle. Among the victims of the swindlers, are foolish, or thoughtless people, and a good many who are dishonest, as well. Some are led into dishonesty by the temptations so freely offered by the rascals who thrive upon the weakness and credulity of their fellow men.

More Newspaper Frauds.

It is sad to think that the biggest frauds are taking on the guise of newspaper men. "Able editors," they call themselves, and "managers"; but they never edited a paper, whatever they may pretend, all the while using the brains of other persons as a substitute for what they never had. We cannot mention all of them, but here are some. There is the "Kentucky Farmer," which offers a prize worth from one dollar to one thousand dollars to each new fifty cent subscriber, and would you believe it, this humbug got a good many subscribers. This shows how true it is that many of the victims of these frauds may be quite as dishonest as the swindlers; for who could expect a dollar for fifty cents? Then there are the "Cincinnati Ledger," and the "Farming World"; all able frauds, in the way of getting money from the pockets of the unwary. Some of these are the plainest kind of lottery concerns.

Inquiries About Doctors.

The various quacks advertise largely in the country papers. They usually have a "displayed" advertisement, in which they state their marvelous cures, or set forth the merits of their particular remedy. The advertisement usually ends by giving the "office hours" of the advertiser, whose office is in some conspicuous locality, or in some well-known street. These advertisements are so frequent, and claim so much, that we do not wonder that many of our subscribers write us, to ask about the standing of one or another of these advertising doctors. There is published each year in New York city, a "Medical Register," in which is given the name and address of every physician who has a right to sign M. D. after his name, giving the name of the college at which he graduated, and the date. We are well acquainted with the medical man who compiles this "Register," and know the great care he exercises to have it accurate. When we are asked about this or that advertising doctor, we turn to this Register, and if we find the name of the person inquired about, report him as in regular standing. If, as is usually the case, we do not find the name in the Register, we report accordingly. Some men who have graduated at a medical college and have gained a diploma, have fallen into quackery; and though they retain their diplomas, have forfeited all claim to belong to the medical profession. Every one claiming to be a physician who advertises anything beyond the fact that he is an M. D., has his office at such a place, and may be consulted at certain hours, is to be regarded with suspicion.

Swindling Wool Buyers.

The buyers of wool are operating extensively just now, and among a good many honorable agents of responsible houses, there are a few rascals who represent only themselves. One of these gentry, wearing kid gloves and gold eye-glasses, has been buying wool in Pennsylvania, and giving drafts at thirty days' sight. That means, thirty days after the draft has been presented for acceptance. The wool is ordered to be shipped immediately, and long before the thirty days have elapsed, it may have been sold a dozen times, and can not be recovered. Cash on delivery should be the terms on which business in produce is done with strangers, and any receipt, signed for a small payment, to bind the bargain, should be examined, to see that it does not cover a promissory note.

Free Physic.

The Irishman who sold eggs at a loss, made his money, as he said, by the quantity he sold. Just in the same way the advertising quacks make money by giving away bottles of colored water, which they say cures your liver disorder, or boxes of grease which cures your cancer, or a mixture of palm oil, which cures all the diseases to which flesh is heir. Here is the secret. A young man who has been "too rapid," or a middle-aged man, or an old one, who begins to imagine he is sick, sees these quack advertisements, and writes for advice. He gets it, for all it is worth—just nothing. He can get more and more medicine for three dollars or five dollars, or a dozen bottles at a reduced rate. It is no matter if he never writes again. The fraud has made his profit in the name and address of the correspondent.

DO YOU WANT TO KNOW

how so many circulars, letters, swindling papers, etc., etc., came to your address for months after you wrote to that quack? Simply this way. Your name and address, with thousands of others, have been sold by the "retired physician," the aged Indian, and the "philanthropic" fraud to whom you wrote for advice, at a good round sum, over and over again. The names of readers of newspapers, and farmers especially, have a commercial value, and have brought at public sale, in the shape of bundles of letters, as much as sixty-six and two-third cents each. Think of all the confidence reposed in these scamps being retailed all over the country.

The Sackett Plow Swindle.

The following is a specimen of the communications which have been coming to us for the last fifteen months:

LYONS, N. Y., June 23, 1885.

THE SACKETT PLOW COMPANY,
I wish to learn more of the Pulverizing Plow. Will you send a description, and oblige, Yours, &c.,
(Box 789.) C. SMART.

This communication came addressed as follows:

THE SACKETT PULVERIZING PLOW CO.,
care, AMERICAN AGRICULTURIST,
751 Broadway, N. Y. City, N. Y.

We have to say publicly to the above writer, as we have said privately to many others, that this concern never has had any connection with the Sackett Plow, beyond the fact, that our columns were surreptitiously used to float the so-called "Company." As soon as we discovered the character of the enterprise, and furthermore, that an attempt was being made to use the *American Agriculturist*, we not only excluded all reference to the Sackett Plow in our reading columns, but also refused to receive the advertisement in our advertising columns. We repeat, the *American Agriculturist* never has had the slightest connection with this iniquitous scheme, beyond the fact, that we were imposed upon in the same manner as were very many others.

Some Features of this Number.

Rev. E. P. Roe and Mr. A. S. Fuller discourse on Strawberries; Joseph Harris continues his Walks and Talks, and gives hints on the Prevention and Cure of Foot Rot in Sheep, Curing Clover, Hay, etc. Col. Weld writes a description of the La Fe Apiary of St. Domingo, and contributes a notice of the late Wm. M'Combie, and the Angus Doddies. D. D. T. Moore discusses the merits of Small Farms. Dr. Thurber tells about a new Insect Enemy of the Pea, with other horticultural articles. Henry Stewart furnishes a most useful article on Taking off and Treating a Hide: also notes about Labor-saving Implements and Contrivances, and writes about a Southern Stock Range. Joel S. Munson, of Wisconsin, describes a new Hay Derrick. L. C. Root gives his excellent "Bee Notes" for August. David W. Judd contributes various articles. Gen. Armstrong makes an interesting Statement About the Farms for the Indian and Freedman, at Old Point Comfort, Va., supported by the Government of the United States and the Legislature of Virginia. Robert B. Roosevelt gives a vivid account of the pleasures of a Day Spent on his beautiful Sharpie Yacht. A. I. Thompson furnishes the plans and details of Construction of a Suburban Cottage costing $2,500. Mr. Welch shows us a number of pleasant Souvenirs of a Summer Vacation in the Country.

Personal.

The friends of agriculture will be pleased to learn that Mr. Lawson Valentine, of Houghton Farm, whose protracted illness caused his friends no little solicitude, is now rapidly convalescing.

Something that can be Relied Upon.

James W. Moore, one of our old subscribers in Dutchess Co., N. Y., writes:

"The longer we take the *American Agriculturist* the better we like it. There is one special feature about it that I specially like it for. *We can have confidence in its advertisements.*"

We now adhere more rigidly than ever to the policy of excluding everything from our advertising columns which cannot be vouched for, or which is not fit and proper to go into every home. As we write, there comes to us a two hundred dollar advertisement for a medical work. The book is of such a technical character, we do not believe it should be placed before families for general reading. We are therefore compelled, in accordance with our rules, to decline the advertisement, although we should accept it, if certain that the work would be read only by fathers and mothers. As we have stated in previous numbers, we annually refuse advertisements of a medical character amounting to fully fifty thousand dollars. Furthermore, we are not tempted during periods of business depression, when advertising patronage diminishes, to let down the bars in the slightest degree, and admit advertisements which we cannot fully indorse.

Andrew S. Fuller's Writings.

"GRAPE CULTURIST."
"PRACTICAL FORESTRY."
"STRAWBERRY CULTURIST."
"SMALL FRUIT CULTURIST."

These volumes, by this popular writer, have had a large and continuous sale. Mr. Fuller, to reproduce from the Rural New Yorker, "is too well known as an editorial writer on rural subjects, especially horticulture, pomology, etc., to require any introduction to the leading cultivators of the country." During the fourteen years which have elapsed since the above appeared, Mr. Fuller has continued to pursue his researches and studies, and like Dr. Thurber, Joseph Harris, Henry Stewart, and the other editors of the *American Agriculturist*, has long been a recognized authority in his particular field of labor.

Of course, *he* denies having said it. If there is anything he has not denied, or anything he has not taken in fifteen years time, we should like to be informed of the fact, and will make a note of it.

January and July.

From the "American Agriculturist" for January, 1885.

Our friends will be pleased to learn that we began this year with a larger *bona fide* circulation, and sent the *American Agriculturist* to more paying subscribers, than at the beginning of any year for twelve years past.

Six months have now gone by, and our friends will be pleased to learn that the number of *bona fide* subscriptions received for the *American Agriculturist* during the month of June this year, was larger with one exception, than those received in any corresponding month for eleven years past.

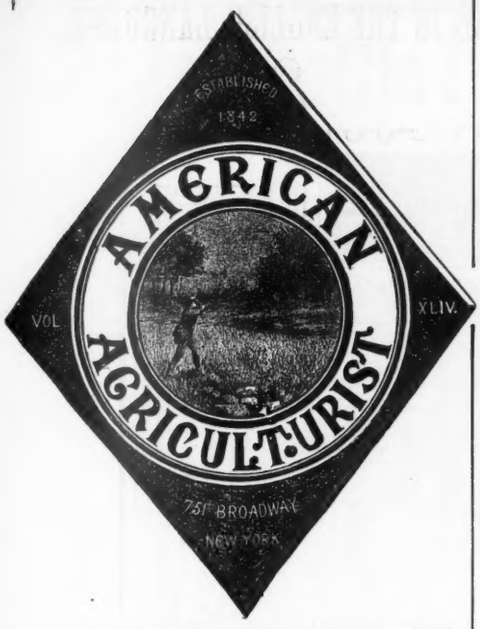
Furthermore, notwithstanding the prevailing business prostration and stagnation, we are now, in July, going to press with considerable more advertising than the *American Agriculturist* contained for the corresponding month of August last year. These are certainly healthy indications for the business future of the country.

Never before was the *American Agriculturist* so freely quoted from by our cotemporaries, as at the present time. Will they please promptly notify us when their copies do not promptly reach them?

Subscribers, and only subscribers to the *American Agriculturist*, can expect the editors to answer their various inquiries sent to this office. We are always willing to oblige subscribers in quest of information, and no little time and labor are expended in so doing.

The Christian Union.—The Christian Union, under the editorship of Rev. Dr. Abbott and Mr. Hamilton W. Mabie, leads all other independent religious journals in this or any other country. Dr. Abbott has a world-wide reputation, and Mr. Mabie, one of our old collegemates, is a most scholarly finished writer, and the remarkable success now attending the Christian Union, is not a little due to his efforts.

Johnson's Cyclopædia.—A few months ago, we stated in very explicit terms our warm opinion of the Peoples' Cyclopædia. Johnson's General Cyclopædia is likewise worthy of great praise and commendation. While we have found it of inestimable value as a reference work in the office, it is likewise specially adapted for families and schools. It is edited and gotten up by no less than thirty-four editors and associate editors; it is complete in two volumes, and sells for thirteen dollars. We recomend our readers to send to the publishers for specimen pages of this Cyclopædia. See advertisement on second page cover of this number.



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alluded to on page 314, and illustrated on page 324, is located on Long Island Sound, about fifteen miles from New York, and on the New Haven R. R., by rail.

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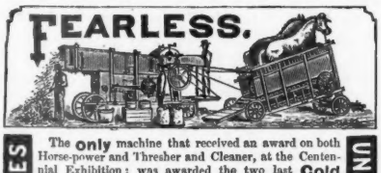

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Kind Words.

GRANT Co., Oregon, July 6, 1885.
Received the picture of General Grant, with which I, and all who have seen it, are very well pleased. Many thanks. J. SEGERDAHL.

WINDHAM Co., Vt., July 3, 1885.
The *American Agriculturist* is the best paper, and is just what every farmer wants. C. W. TEMPLE.

MILWAUKEE Co., Wis., June 3, 1885.
Your Cyclopædia is first-class, while in the *American Agriculturist* I find many articles suitable for supplementary reading in school. The children hail it with joy.
MARGARET E. MACRAVEY.

LUCAS Co., Ohio, May 20, 1885.
I have been reading the *American Agriculturist* for sixteen years, and, in my opinion, the numbers for May and June are not only the best you ever got out, but the best agricultural journals ever issued,
WM. H. MAHER, of Maher & Grosh.

MRS. HENRY WARDLE, of Providence Co., Rhode Island, a former subscriber, who has renewed, writes: "We are better pleased with the *American Agriculturist* every number we receive. We find great improvement in it since we subscribed before. We are so glad that the Rev. E. P. Roe is now writing for the *American Agriculturist*. We have missed his writings so much from Harper's Monthly. We have him to thank for making the year 1884 so entertaining and instructive, in all the years we have been subscribers."

Our Family Cyclopædia.

SONOMA Co., Cal., April 22, 1885.
Your Family Cyclopædia received, and am very much pleased with the work. Many thanks to you for your kindness. MRS. CATHERINE KOPP.

HUNTERDON Co., N. J., April 17, 1885.
Your Family Cyclopædia received, and it is more than I expected. Many thanks. JONATHAN KITCHIN.

BRADLE Co., Dakota Ter., April 17, 1885.
Family Cyclopædia received O. K. It is a very good work. JOHN WEBSTER.

YALE Co., British Columbia, April 3, 1885.
The Family Cyclopædia safely to hand. I am very much pleased with it, and return you many thanks for such a valuable present. FRANCIS WALKER.

MIAMI, Manitoba, April 4, 1885.
Cyclopædia to hand in good order. Am well pleased with it. It is a very valuable book where there is a family, and is fully what you represent it to be.
S. UMPHREY.

ORANGE Co., N. Y., April 2, 1885.
I have the pleasure to acknowledge receipt of your Cyclopædia, and further, that I consider it worth the subscription price, minus the monthly parts of the *American Agriculturist*. A. FREIS.

CHOTEAU Co., Montana, April 9, 1885.
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BARTON Co., Ga., April 6, 1885.
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KENT Co., Mich., April 18, 1885.
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Royal Baking Powder.—It is a rare circumstance for the *American Agriculturist* to editorially allude to any advertisements which appear in its advertising columns. The fact, that they are there, we consider as a guarantee that they are good. Unsolicited, however, we heartily recommend to all of our readers the Royal Baking Powder, which is advertised elsewhere. Every family of the hundreds of thousands who read the *American Agriculturist*, should have this Royal Baking Powder on its shelves.

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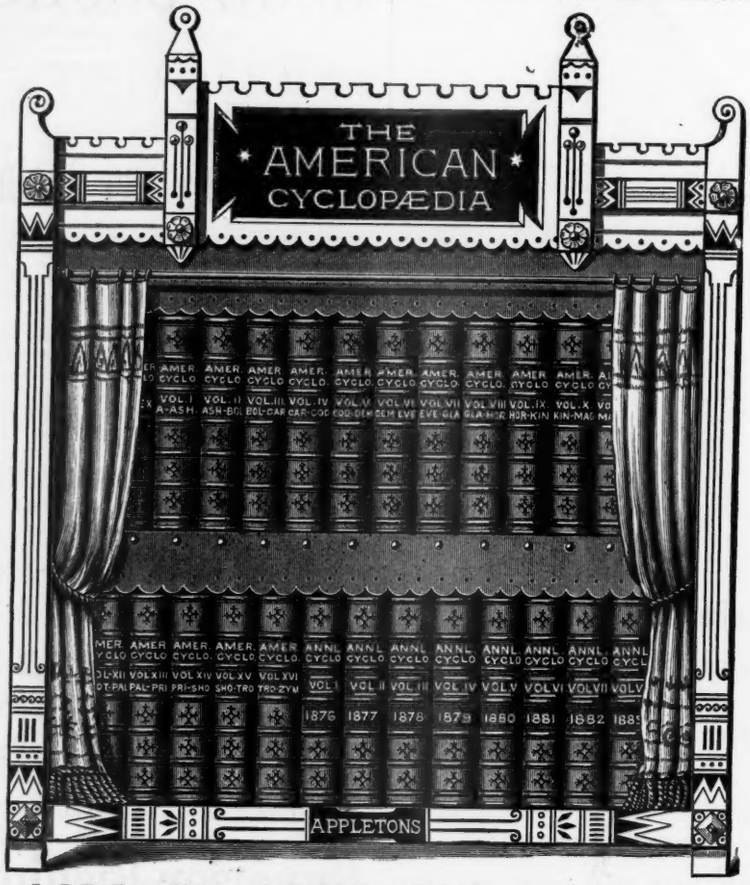

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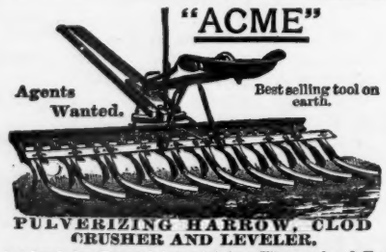

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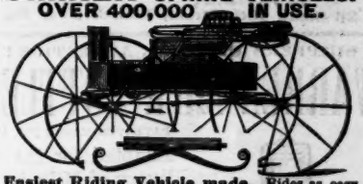

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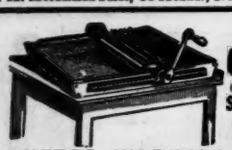

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